

Finish

THE MAGAZINE OF
Appliance AND
Metal Products MANUFACTURING

to face the elements
and the

future

**PORCELAIN
ENAMEL—
"Ceramic"
COLORS**

for architectural panels

"Ceramic" was an important supplier of color for architectural porcelain enamel in the early days, when filling stations furnished the only market. Since then porcelain enamel panels have come into their own as an important factor in architectural design; recognized for their structural economy, diversity of color, versatility of application, and easy maintenance.

Leading manufacturers have continued to depend on "Ceramic" for colors that smooth production problems and can be relied on for precise color matching and continued uniformity.



CERAMIC COLOR & CHEMICAL MFG. CO.
New Brighton, Pa., U.S.A.



Walls may need refinishing—but not porcelain enamel!

Are you putting an exterior finish on your products that matches the durability of inside parts? If not, consider porcelain enamel . . . the *lifetime* finish.

Porcelain enamel provides an inorganic surface that is impervious to many of the hazards your products may encounter in service. It resists most food acids. Sharp instruments that might permanently mar some finishes have little effect on porcelain enamel. Years of exposure to sunlight and weather show it to be one of the most color-fast materials known. Since it is fused to the base metal at 1550 F, porcelain enamel will withstand any temperature encountered in home service.

Formula for Best Results

For best results with porcelain enamel, the base metal must have excellent bonding qualities, a flat, smooth surface, and uniform fabricating characteristics. That's why Armco Enameling Iron has been used by more porcelain enamellers over a longer period than any other base metal. Armco supplied the first sheets of this special metal more than 40

years ago. Since then, it has become known as the "World's Standard Enameling Iron."

Experienced job enamellers are ready to work with you—not only on design problems but in the production of porcelain enameled parts. For their names, just fill in and mail the coupon.

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Send me names of job enamellers.

We manufacture _____

Name _____

Company _____

Street _____

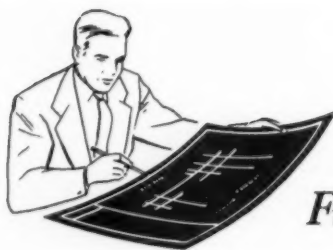
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ARMCO STEEL CORPORATION

1076 CURTIS STREET, MIDDLETOWN, OHIO

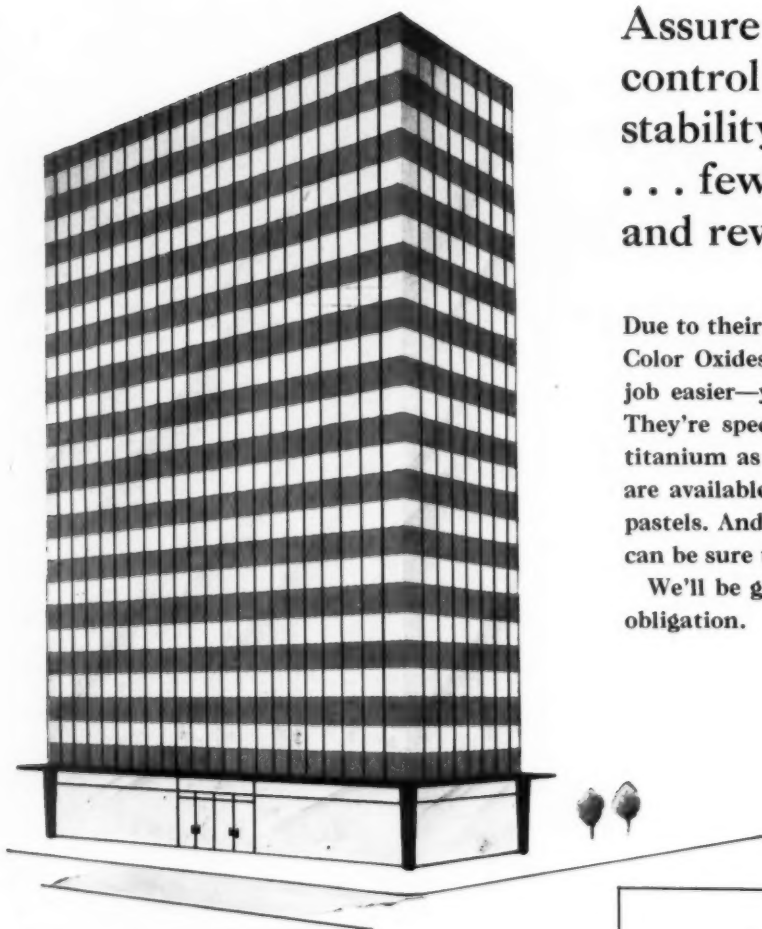


SHEFFIELD STEEL DIVISION • ARMCO DRAINAGE & METAL PRODUCTS, INC. • THE ARMCO INTERNATIONAL CORPORATION



From start to finish . . .

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Due to their purity and uniformity, Vitro Color Oxides help make your production job easier—your finished product better. They're specially formulated to work in titanium as well as in clear AR frits and are available in a full range of beautiful pastels. And with Vitro Color Oxides, you can be sure the color is right—every time.

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A Division of Vitro Corporation of America

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Colors by
Vitro

March • 1956

VOL. 13 • NO. 3

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finish

MONTHLY TRADE PUBLICATION

Established January 1944

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A trade publication devoted to the interests of the metal products manufacturing industry with special editorial attention to home appliances. The editorial scope covers design, engineering, market and statistical information and technical and practical information on plant facilities and all phases of manufacturing "from raw metal to finished product."

Free controlled circulation to top management, purchasing, engineering and key plant management and supervision in metal product manufacturing plants. To others, subscription price is \$5.00 per year, domestic. To all other countries \$8.00 per year (U.S. funds).

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finish

**METAL PRODUCTS MANUFACTURING
FROM RAW METAL TO FINISHED PRODUCT**



Large diameter coils leaving the temper mill at our Indiana Harbor Works, East Chicago, Ind.

The Big Coil Lineup

Such a lineup of big coils is an everyday sight in our cold reduced sheet mill. With complete integration of steel production from ore mines to shipping platform and with modern manufacturing facilities, we have unusual flexibility to meet any requirements on cold rolled sheets and strip. Quality control and physical specifications are no problem.

If your operation calls for cold rolled products of close uniformity and unvarying high quality, we would like to talk to you. Telephone the Youngstown District Sales Office near you or write the home office. The earlier we can discuss your requirements, the better we may be able to serve you in the coming months.

Youngstown

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SHEETS
AND STRIP**

THE YOUNGSTOWN SHEET AND TUBE COMPANY

*Manufacturers of
Carbon, Alloy and Tool Steel*

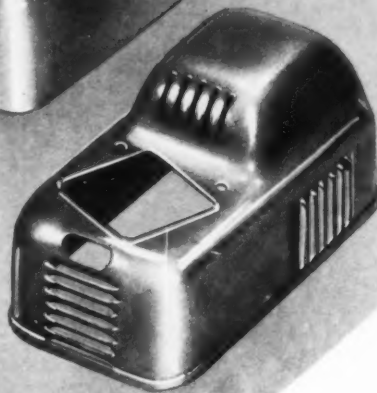
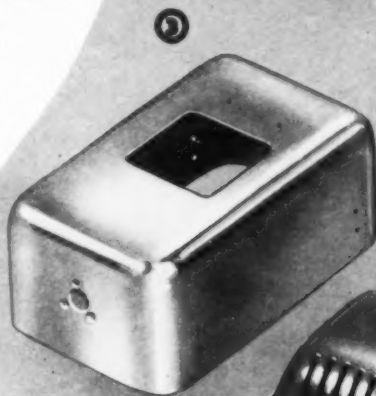
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Whatever your parts problem may be — whether it's a difficult stamping or a deep draw — Danielson equipment and "Know-how" is ready to help you — give you complete service and save you money!



1. A difficult vari-angled stamping. Part of Aircraft Gas Tank.

2. Aluminum Drip Pan for Vending Machine. Made in 1 draw.

3. Aluminum Housing made in 1 draw.

4. Steel Housing made in 2 draws.

5. Aluminum part made in 3 draws.




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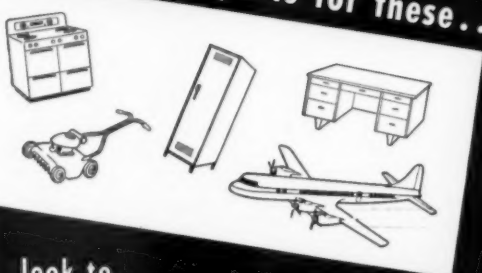
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as component parts for these...



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DEPENDABLE DELIVERY

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QUALITY HARDWARE... ALL FROM 1 SOURCE



NATIONAL LOCK COMPANY

ROCKFORD, ILLINOIS



from the Editor's Mail

missed January issue

Gentlemen:

Happy New Year!

We know we are missing something so far in '56, but until today we have not been able to put our finger on it. It's all your fault! None of us in our Cleveland office received a copy of your January '56 edition of *finish*. . .

William A. Lowry
Vice President
Vitreous Steel Products Co.
Cleveland, Ohio

We are pleased that you think enough of *finish* to miss it when it is late. January was delayed intentionally as in previous years to avoid the holiday and post holiday rush. You will have your copy by the time this letter arrives, and future issues will be back on schedule. Eds.

enthusiastic about *finish*

Gentlemen:

Through a coincidence your publication *finish* came to the attention of the president of our firm. He is quite enthusiastic about the contents of the several issues that he was fortunate enough to secure.

Therefore, he has asked me to contact you regarding the privilege for our executives to receive copies of all future issues of *finish*. . .

Milton Liss, Office Manager
Fein's Tin Can Company, Inc.
Brooklyn, New York

training program at Trane

Gentlemen:

Recently a reprint of the article "The History of Phosphatizing", from March 1954 *finish*, came to my attention.

We would like to have a limited number of copies of this reprint for reference purpose in connection with our Graduate Training Program. This course provides the requisite background for engineering college graduates we have selected for our home and field sales office assignments.

This course is designed to bridge the gap for these graduate engineers following graduation and assignment to our offices in the field of heating, refrigeration, ventilation and air conditioning.

Milton R. Paulsen
Mgr., Training Dept.
The Trane Company
LaCrosse, Wisconsin

requests for January issue

Gentlemen:

As you know, we plan to give wide distribution to many thousands of copies of this special section to customers, vendors and suppliers, important security houses and to all of our employees. We feel that this story will have considerable impact in all of these areas across the country.

It has been a great pleasure to work with you and your associates and on behalf of the Rheem Manufacturing Company, I wish to congratulate you on a job well done.

Howard W. Wright, Jr., Director of Public Relations
Rheem Manufacturing Company
Chicago, Illinois

Thank you for your comment. A special section such as included to Page 65 →

MARCH • 1956 *finish*

The "NEW LOOK" in Production Stamping

AUTOMATION for the pressroom is just around the corner according to a number of the nation's leading press experts who have studied the revolutionary "Flying Press" approach recently announced by the Wean Equipment Corporation.

Taking a coil of steel directly from the mill, the Wean Flying Press Line de-coils, levels, measures, blanks, sorts, counts and piles the finished piece on trans-car ready to be rolled to the next operation—at a speed heretofore considered unobtainable.

Present engineered lines will handle coils up to 72 inches in width—cutting lengths from 12 inches to 8 feet.

If low cost, mass production stamping appeals to you, why not contact a Wean Equipment engineer for full particulars? Write direct or call the Wean office in Chicago, Detroit or Newark, N. J.

WEAN EQUIPMENT CORPORATION
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DESIGNERS AND BUILDERS OF ULTRA HIGH SPEED METAL WORKING EQUIPMENT

• One of a series on Cook's Industrial Finishes •

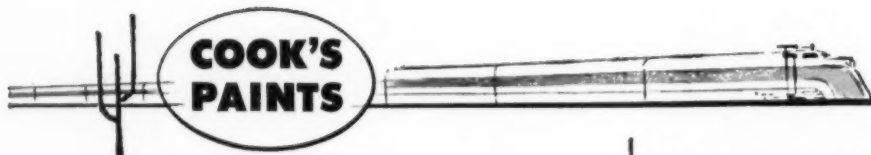


Cook's provides the war paint along the Santa Fe trail.

It's a railroad war against weather, wear, and dirt. And it's being won every day, every mile. Cook's research chemists have developed a special line of finishes to help Santa Fe cars roll for years without refinishing, while preserving much of their original attractive appearance.

Your problem may not be like Santa Fe's. We would be surprised if it were. But Cook's industrial division can help you find the right finish at the right price for your products or equipment. Millions of automobiles and refrigerators, ranges and boats, brooms and awnings, and even bobby pins and fishing lures are factory finished with Cook's. We've been doing this sort of thing for more than 40 years.

May we be of help to you? Our experience and research facilities can be at your disposal with only a letter describing your finishing situation. It is quite possible that a standard Cook's formulation will answer your need. You may desire a completely new and unusual finish. You may want the answer to a troublesome application problem. Whatever the case, drop us a letter in today's mail. You'll receive a prompt, informative answer.



COOK PAINT & VARNISH CO.

1404 Knox Street, North Kansas City, Missouri
One of the first ten of America's 1,500 paint manufacturers
Factories: Kansas City • Detroit • Houston

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Just off the presses!



Send coupon for **FREE** copy . . . DESPATCH'S NEW 16-PAGE BULLETIN ON METAL FINISHING SYSTEMS

BULLETIN 51 contains plenty of suggestions, tips and ideas on modern ways to achieve better finishes at lower cost, faster production and smoother handling of metal products.

BULLETIN 51 is generously illustrated with photographs, drawings and diagrams.

You'll find this colorful, informative booklet can help you solve your problems in metal finishing through DESPATCH's *Completely Engineered* finishing systems.

Send Coupon for your free copy!



**DESPATCH
COMPLETE
ENGINEERING**
can give you
**BETTER FINISHES
FASTER PRODUCTION
SMOOTHER HANDLING
FEWER or NO REJECTS
at LOWER COST**



**DESPATCH
OVEN COMPANY**

Dept. 51
619 Eighth St. S.E.
Minneapolis 14, Minnesota

Gentlemen: Please rush my **FREE** copy of your new Bulletin 51, "Completely Engineered Systems for Modern Finishing of Metals"

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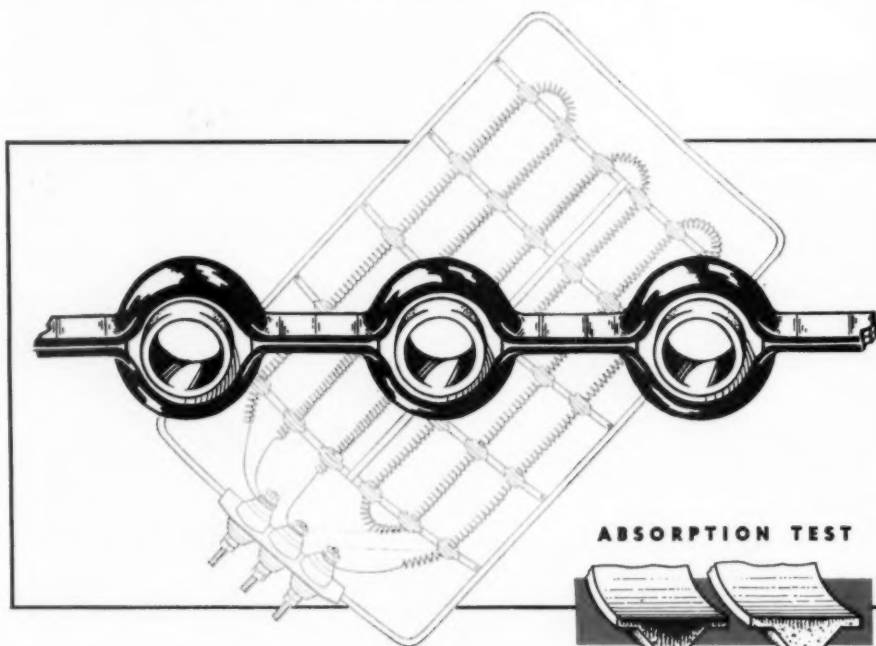
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PIONEERS IN ENGINEERING FINISHING SYSTEMS FOR INDUSTRY

How **TEP-Heat** INCREASES HEATING ELEMENT EFFICIENCY



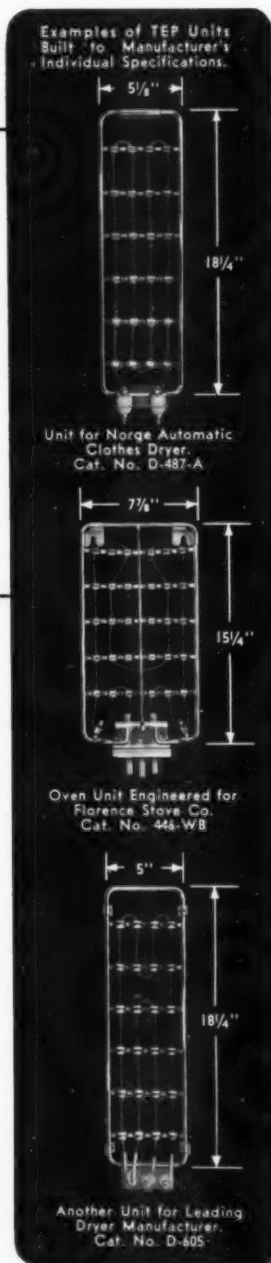
MICRO AMP LEAKAGE REDUCED BY MORE THAN 50% WITH TEP UNIT INSULATORS

TEP unit insulators, made from porosity-controlled Steatite, reduce micro amp leakage to a minimum by controlling moisture absorption. This assures more efficient, economically operated heating elements for your products. The use of special Steatite in high temperature insulators was introduced and pioneered by TEP engineers. Independent laboratory tests prove that there is approximately 50% less leakage current (micro amps measured at Frame and Terminal Plate to Ground) with TEP units than with conventional units! For fast adaptations and economical production of heating elements for most product models, TEP stocks over 100 different insulator types. For special units, TEP engineers will design and tool special insulators for your individual requirements.

OTHER TEP-HEAT ADVANTAGES

Other reasons engineers specify TEP units include: Sure Lock Insulator Supports, TEP designed to eliminate dislocating and subsequent electrical failures; "Floating Construction" for longer frame life by holding welding to a minimum, and Special Nickel Plating by an exclusive TEP process to assure a high quality chrome-like finish.

Call or Write for free TEP Engineering and Design Service. Let a TEP representative work with you to develop new or improve old units. There is no obligation.



TUTTLE ELECTRIC PRODUCTS, Inc.

formerly FERRO ELECTRIC PRODUCTS, INC.

KIRKLAND, ILLINOIS

PHONE: 37

THE finish *spotlight*



The Shelvador refrigerators for 1956 have unusual style as well as coming in three pastels (yellow, pink, and green) as well as white. Styled by Boldt of Chicago, the model shown here is a combination refrigerator—freezer with the latter located below. The center-placed latch is a push-pull device. The item at the top of the circle is a push-button for closed door ice water delivery.

Let AMICO solve your appliance-casting problems...

... with versatile, low-cost malleable castings.

Whether your requirements call for a casting large—or delicate, you can easily slash production, machining and assembly costs because Albion's malleable casting techniques offer a complete freedom of design with the elimination of excess metal and finishing time.

Then, too, Albion's malleable irons (pearlitic and ferritic) afford amazing wear resistance, maximum rigidity, endurance plus exceptionally high yield strength.

Why not review your appliance components and see for yourself just how many places a good, accurate, low-cost casting would improve your production, increase the life-span and overall appeal of your product.

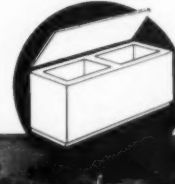
Or—contact the Albion Malleable Iron Co. now. They'll be glad to show you examples of how they can solve your appliance-casting problems and save you time—tools and dollars.

Albion's Research and Development Laboratory facilities and competent engineering staff are ready to assist you.



**ALBION
MALLEABLE
IRON CO.**

ALBION, MICHIGAN



MEETINGS

ASTE CONVENTION AND INDUSTRIAL EXPOSITION

American Society of Tool Engineers, Industrial Exposition and 24th Annual Convention, International Amphitheatre, Chicago, March 19-23.

CERAMIC SOCIETY MEETING

American Ceramic Society, 58th Annual Meeting, Hotel Statler, New York City, April 22-26.

PMI SPRING MEETING

Annual Spring Technical Meeting, Pressed Metal Institute, Hotel Carter, Cleveland, March 14-16.

PAINT FEDERATION COUNCIL

Federation of Paint and Varnish Production Clubs Council, spring meeting, Statler Hotel, Los Angeles, March 24.

ENAMELERS CLUB MEETINGS

Central District Enamelers Club, Hotel Manger, Cleveland, Ohio, March 16.
Midwest Enamelers Club, La Salle Hotel, Chicago, March 24.

APPLIANCE TECHNICAL CONFERENCE

American Institute of Electrical Engineers, 7th Annual Appliance Technical Conference, Wisconsin Hotel, Milwaukee, May 14-15.

AMA MFG. CONFERENCE

American Management Association, Manufacturing Conference, Hotel Statler, Detroit, March 26-28.

DESIGN ENGINEERING CONFERENCE & SHOW

American Society of Mechanical Engineers, Design Engineering Conference, held concurrently with Design Engineering Show, Convention Hall, Philadelphia, May 14-17.

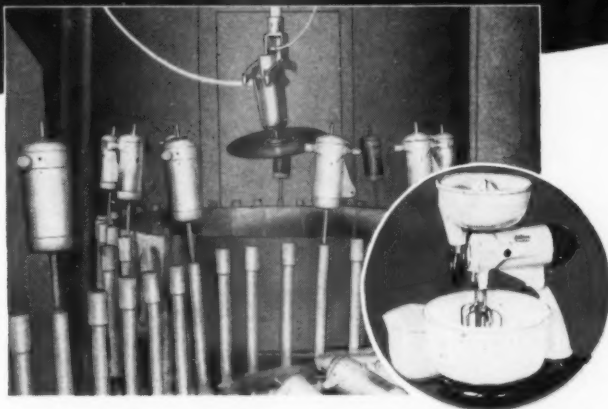
AMA PACKAGING SHOW

American Management Association, 25th National Packaging Exposition, Convention Hall, Atlantic City, N.J., April 9-12.

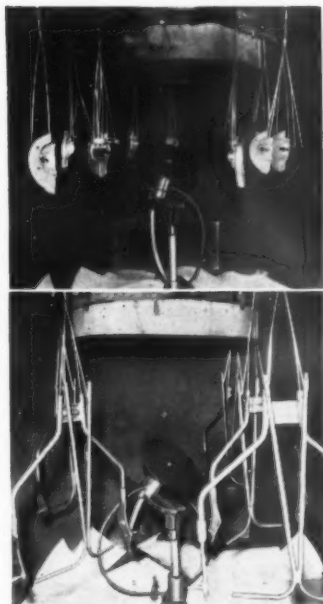
AWS WELDING SHOW

American Welding Society, annual welding show, Memorial Auditorium, Buffalo, N. Y., May 7-11.

Sunbeam is particular about
the uniform high quality finish on
their products, so **SUNBEAM** relies on
RANSBURG NO. 2 PROCESS
Electrostatic Spray Painting



Along with improving the quality of the brilliant white finish on Mixmaster parts, an 80% paint savings was achieved when **SUNBEAM** switched from hand spray to **RANSBURG** Electrostatic Spray Painting



Protective clear lacquer is applied to upper saw guard (upper left) with **RANSBURG NO. 2 PROCESS** on this line in **SUNBEAM**'s plant 2, Chicago. Other hardware items, including the Drillmaster and Sunbeam Sander are lacquer-coated electrostatically here. Lawn mower parts, such as the handles shown (lower left), the Rain King lawn sprinkler base, and the Sunbeam Fryer base also are painted efficiently with Ransburg No. 2 Process Electro-Spray.

Regardless of the type of product you manufacture, if it's painted—and if your production justifies conveyORIZED painting—you should look into the savings and improved quality which can be yours with one of the Ransburg Electrostatic Processes. May we tell you about complete Ransburg services, including the test painting of your products in our laboratories?

Ransburg

Write to Dept. F.
ELECTRO-COATING CORP.

Indianapolis 7, Indiana

RANSBURG

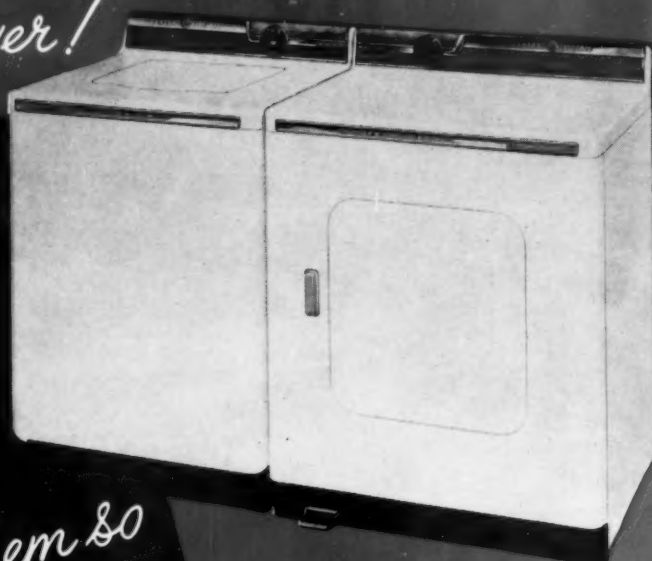


GENERAL ELECTRIC WASHERS and DRYERS

are Better than ever!

and
**FAHRALLOY
BURNING
TOOLS**

help make them so



Making good electric appliances even better has always been a goal at General Electric. In fact, G-E sums it up with its byword "Progress is our most important product."

Among the better-than-ever G-E appliances are their washers and dryers. We here at Fahrалloy are particularly proud of the part our products play in the daily production of those fine home laundry appliances. Specially designed, metallurgically correct—Fahrалloy Burning Tools convey G-E washer tubs and other parts through the furnaces where the porcelain enamel finish is fused to the steel at temperatures in the 1500°F range.

Day after day, month after month, year after year, Fahrалloy heat resisting alloy castings provide the most dependable service in plants all over the country wherever high temperature service conditions must be met. Industry has learned from experience that whenever the problem is heat, the solution is Fahrалloy. Won't you give us the opportunity to serve you?



Fahrалloy Burning Tools "carry the load" through this G-E furnace at Appliance Park, Louisville, for firing of the porcelain enamel.



THE FAHRALLOY CO.

150th & Lexington Ave. — Harvey, Illinois
In Canada — Fahrалloy Canada, Ltd., Orillia, Ontario

D-ENAMELING

**is more economical
than ever...**

Once D-Enameling was a temporary expedient which appliance manufacturers used to stretch critical steel supplies, but that day is gone! Now, America's leading appliance manufacturers consider D-Enameling a permanent part of their manufacturing picture. D-Enameling has come of age... has assumed its role as a routine step in appliance manufacturing. The reason is simple — D-Enameling transforms scrap loss into profit dollars.

**THESE INDUSTRY LEADERS KNOW FROM
EXPERIENCE THAT D-ENAMELING TRANSFORMS
SCRAP LOSS INTO PROFIT DOLLARS**

AIRLINES

**HOME LAUNDRY APPLIANCE
MANUFACTURERS**

JOB ENAMELING PLANTS

RANGE MANUFACTURERS

REFRIGERATOR MANUFACTURERS

SANITARY WARE MANUFACTURERS

SIGN MANUFACTURERS

SPACE HEATER MANUFACTURERS

WATER HEATER MANUFACTURERS

*D-Enameling is a patented process.

New Process D-Enameling Corp.

Highland and New Haven Avenues • Aurora, Illinois



Hand in Hand

QUALITY

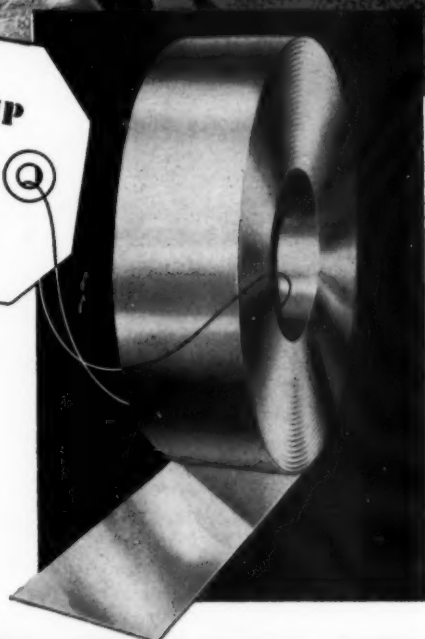
FOLLANSBEE

COLD ROLLED STRIP
by
FOLLANSBEE



Pride in product is perhaps the strongest reason for Follansbee's reputation in the industry as, "A Quality Producer of Cold Rolled Strip." And Follansbee mill operators are not satisfied until every specification on every order is met *exactly*.

Why not add your name to our growing list of satisfied users. A Follansbee representative is always near at hand and anxious to prove what true quality and unmatched service can do for you and your product.



FOLLANSBEE

STEEL CORPORATION



FOLLANSBEE, WEST VIRGINIA

Cold Rolled Strip • Seamless Terne Roll Roofing • Polished Blue Sheets and Coils
Sales Offices in Principal Cities

THE finish LINE

LET'S TALK ABOUT SERVICE — the finish line for February presented a very optimistic picture for the production and sale of appliances and other metal products in 1956. This page and important forecast material in other sections of the January and February issues presented a beautiful picture for the current year — a picture built on the facts from leading association statisticians and from the top management and sales personnel of top producing companies.

As the coming months move by it will be interesting to see how close the statisticians and the individual manufacturers have been in projecting the production and sales figures for their industries and their respective individual companies. (Last years forecasts by similar authors, also published in February, proved to be markedly conservative.) As always, we may expect to see *some* of the companies meet their quotas, but it is anticipated that others may find their estimates a bit optimistic. This opinion is based on the fact that many individual producers have set quotas far above the anticipated level for their industries.

In any event, barring a major international upheaval or major production curtailment due to labor upheavals within the boundaries of our own country — factors beyond the control of the *individual* manufacturer — 1956 should continue to present a picture of *production* and *sales* progress.

But — what about service?

A big question concerns service to the consumer who is indicating a willingness to spend increased millions of dollars for the products of our metal products manufacturing plants?

The trend during recent years, particularly in the appliance field, has been to the "automatic". This has placed increasing importance on the controls and other components required to eliminate, to a great extent, the manual operations. As more automatic conveniences are added common sense would indicate the service requirements of the home owner increases, possibly not in direct proportion, but certainly to an important degree.

For example, we know of a housewife who used a conventional washing machine (with spinner) for over 17 years with

only one service call, near the end of the period, for replacement of a spinner bearing.

Now this same housewife has an "automatic" (a machine of good reputation) and she can't quite understand the requirement for periodic service calls to keep the machine in proper operating condition. Another point that bewilders her is a service charge for a single repair job which broke down as follows: replaced component \$2.95, labor, \$30.05 — total \$33.00.

Continued good business demands improved service

It is not our interest to present repeated case histories or, for that matter, to be specific with respect to individual products. We do want to point up the fact that *continued* good business will require far greater attention to the matter of customer service than was considered necessary in earlier years.

Certainly some sections of the industry and many individual manufacturers have stepped up their efforts in this direction. Speaking generally, in our opinion there is still a long, long way to go and the manufacturer who is building for the future would do well to rate the problems of his top service executive on the same plane with those of sales and production.

Dana Chase

EDITOR AND PUBLISHER

This brief editorial serves as a preface for a series of articles to appear in *finish* on the subject of customer service on appliances and other assembled metal products. Leading authorities in the manufacturing and consumer service field will report to *finish* readers — furnishing viewpoints of the national picture from the consumer side plus analysis of successful programs inaugurated by different metal products manufacturers.

PERMA-VIEW SELLS more new ranges



46 leading stove
manufacturers now
use PERMA-VIEW

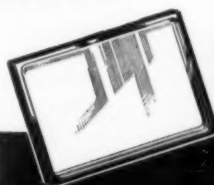
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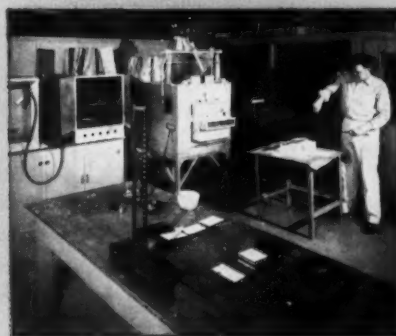
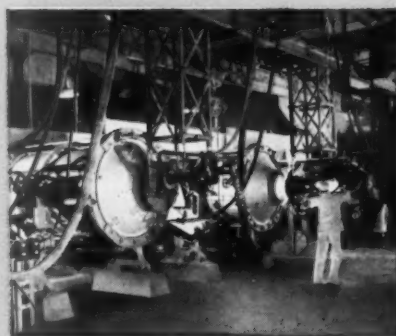
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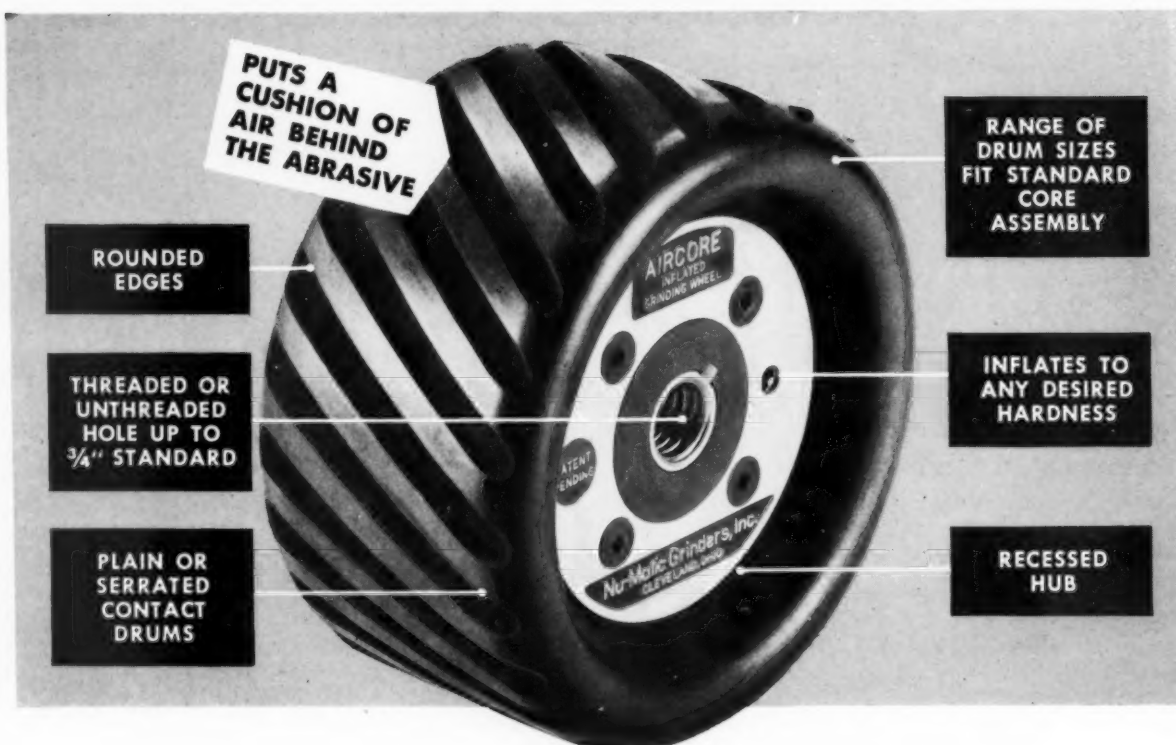
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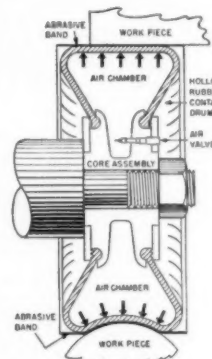
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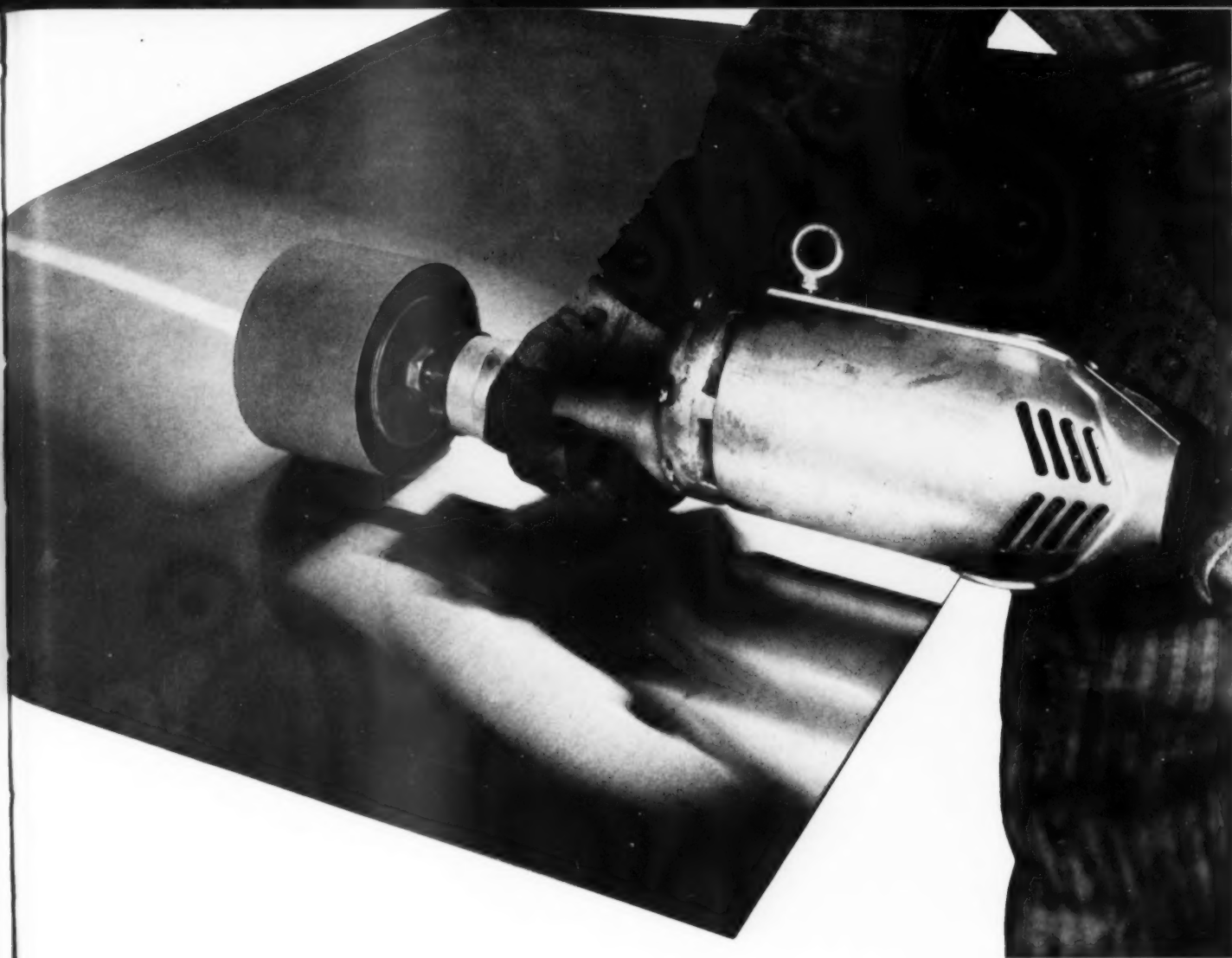
Cleveland 3, Ohio



The Nu-Matic Air-Inflated Grinding Wheel is built like an auto tire — flattens out at point of contact — contours to work surface.



Here you see the large grinding area that an Aircore gives on flat surfaces. A sheet of glass is pushed against an Aircore wheel that has been inflated to 3 pounds pressure.



How to surface finish stainless steels

Part one of a two part report covering every facet of processing in the surface finishing of stainless steels, a methods and materials report.

by *W. E. McFee* • SUPERVISOR, PRODUCT INFORMATION SERVICE, ARMCO STEEL CORPORATION

Four important points should be remembered when surface finishing stainless steels: (1) they are harder and more abrasion resistant than most carbon steels, (2) the chromium-nickel grades have about half the thermal conductivity of carbon steels, (3) the chromium-nickel grades have about 40% higher coefficient of expansion than carbon steels, and (4) the chromium grades are about the same as carbon steel.

So, while standard equipment can be used in grinding, polishing and buffing,

the techniques are different. Also, the work rate for grinding and polishing is slower and can only be speeded up at the price of overheating and discoloration. This is especially true with light gages where warping may also be a problem.

Abrasive finishing

Solid wheel grinding and flexible wheel grinding and polishing are commonly used for abrasive finishing. Vitreous bonded wheels are widely used for cylindrical and surface grinding of rela-

tively heavy sections to dimensional accuracy. For rough surface grinding of bar and wire, forgings and weld beads, the rubber or resinoid bonded wheel cuts more smoothly and is less likely to "load". Fiber-bonded wheels,

Frontal photo

Pneumatic wheels and abrasive sleeves are often used on portable tools for polishing flat areas of stainless steels. Resiliency is readily controlled in this air cushioned wheel, shown in operation in photo.



Hand Block Sander—showing the operation used for polishing a table top of 2B finish 18-8 stainless steel. Shop "Do's and Don'ts" in sanding and buffing appear at the end of this first part of Mr. McFee's report.

Flexible Wheel — this shop-headed flexible wheel is grinding a weld bead after snagging with solid wheel has been completed.

Table I Hide Glue Mixtures		
Size of Aluminum Oxide Grain (Grit Number)	% Glue by Weight	% Water by Weight
24-36	50	50
46-54	45	55
60-70	40	60
80-90	35	65
100-120	35	67
150-180	33	70
220-240	25	75

STAINLESS STEELS CONTINUED

too, are achieving wide popularity for grinding operations. They cut fast, have long life.

"Flexible" grinding and polishing wheels are well suited when quality of surface is the prime consideration, and size tolerance is not exacting. Coarse grits can be used to remove considerable quantities of metal, while progressively finer grits will produce standard commercial finishes or prepare for buffing.

There are two types of flexible grinding and polishing wheels — shop-headed wheels and factory-coated strips and belts. Suitable for shop-heading are: (1) canvas wheels, excellent for heavy work with abrasives from 24 to 46 grit, (2) stitched muslin wheels, which run the gamut from coarse grinding to fine polishing, (3) solid felt wheels, generally used with 150 grit and finer for high polishes, or (4) compress wheels for use when a formed wheel face is necessary. They also can do most of the work of a stitched muslin wheel. These are the most commonly used types of wheels. Many others are available for special requirements.

Factory coated strips

Factory coated strips and belts have found great favor among fabricators, ranging in versatility from rough grinding to the finest polishing.

They are used in four ways: (1) in



paper or cloth strips designed to be mounted on special rubber contact wheels, (2) as endless cloth or paper belts for use on portable tools, (3) as endless abrasive belts on bench polishers, or (4) to surface various types of wheels and discs used on flexible shaft machines and portable electric or air-driven tools.

Factory-coated abrasives have several advantages. They do away with shop-heading and produce consistent uniformity and quality. Also, they extend the use of abrasive belts, providing much more abrasive surface than a wheel or roll. Cooling is improved, which is sometimes an advantage in grinding and polishing stainless steels.

Application of abrasives

A detailed discussion of abrasives and their application to wheels and belts would be too lengthy for the purposes of this article.* The more salient points, however, are: (1) aluminum oxide is the most commonly used abrasive for grinding and polishing stainless steels. It has great point endurance, and the crystals sharpen themselves, (2) whatever the abrasive, it should be hard and tough, uniform and should bond well to wheel or belt.

(3) abrasives must be clean, free from iron and used only on stainless steel, (4) avoid use of natural emery, as artificial emery is iron-free and more effective, and (5) cements and cold glue preparations are sometimes used for bonding abrasives to backing, but high quality animal hide glue is favored for grinding and polishing stainless steels.

Table I gives hide glue mixtures for average requirements. These are for wheels operating at approximately 7500 sfpm. At higher speeds glue content should be increased about 5%.

Something should be said for cold cements for wheel heading. Unlike hide glue, no heating equipment is needed, and there is less material waste. Curing is much shorter, varying among brands. Cement-headed wheels cut faster and do good work in roughing but are not as flexible as glue-headed wheels. Wheel heading by spraying is still another method. It reduces resurfacing time and labor costs considerably.

please turn page →

Editor's Note: Complete information can be had by writing to the author in care of finish.

finish MARCH • 1956



Rubber-bonded Wheel—has been satisfactory for snagging down weld bead.

Table II
Suggested Sequence of Operations for Grinding, Polishing, and Buffing Stainless Steels

Finish*	Operation Sequence	Abrasive	Lubricant	Wheel		
				Type	Size**	Speed***
Welds		Aluminum Oxide Grit No. 40-60	Dry	Rubber, Bakelite or Fibre Bonded	4-8	4000-60000
No. 1	1	Aluminum Oxide Grit No. 60-80	Tallow or Grease Stick	Shop-Headed or Factory-Coated (Wheels or Belts)	12-14 S 5-6 P	6000-80000
No. 2D or No. 2B	2	Aluminum Oxide Grit No. 80-100	Tallow or Grease Stick	Shop-Headed or Factory-Coated (Wheels or Belts)	12-14 S 5-6 P	6000-8000
No. 4	3	Aluminum Oxide Grit No. 150	Tallow or Grease Stick	Shop-Headed or Factory-Coated (Wheels or Belts)	12-14 S 6 P	6000-8000
No. 6	3B	Pumice, Lime or Silica Flour	Oil and/or Kerosene	Tampico Brush	8-16	2500-5000
No. 7	4	Aluminum Oxide Grit No. 180	Tallow or Grease Stick	Shop-Headed or Factory-Coated (Wheels or Belts)	12-14 S 6 P	6000-10000
No. 7	5	Aluminum Oxide Grit No. 240-280 Abrasive Stick		Buff	12-14 S 6 P	9000-10000
No. 7	5B	Stainless Buffing Compounds		Buff	12-14	7000-9000
No. 8	6	Aluminum Oxide Grit No. 320-400 Abrasive Stick		Buff	12-14 S 6 P	9000-10000
	6B	Stainless Buffing		Buff	12-14 S 6-8 P	7000-9000
Scratch-Free Mirror	7	Stainless Buffing Compounds		Buff	12-14 S 6-8 P	7000-9000
	8	Stainless Buffing Rouge		Buff	12-14 S 6-8 P	7000-9000

*Sequence of finishes which can be produced with No. 1 pickled finish or No. 2D or No. 2B cold reduced finish.

Operations 3B, 5B, and 6B are special steps to finish off at the respective No. 6, 7, and 8 finishes. When working through to a higher finish,

B operations are not used.

** Wheel diameter in inches

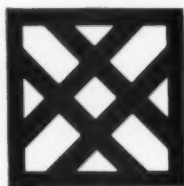
***Speed in surface feet per minute

S — Wheel diameter for stationary machinery

P — Wheel diameter for portable machinery

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Carbide Burr — optimum performance used, as shown, on inside and outside corners and for other cutting-down work on stainless steel welds. High speeds are essential for this operation, the author asserts.

STAINLESS STEELS CONTINUED

Given the proper machining, wheel dimensions and speeds, grit sizes and lubricants, these are the elements that influence the final finish.

- **Wheel resilience:** A certain grit on a soft wheel produces a different scratch than the same grit on a hard wheel.
- **Wheel speed:** This influences the cutting action of the abrasive grain.
- **Lubricant:** Kind and quantity regulate the depth of cut by each abrasive grain and thus influence the finish.
- **Condition of abrasive:** Fresh and worn abrasive wheels or belts give different results.
- **The machine:** Portable tools differ in results from stationary machines, which in turn differ from one another.

Shop do's and don'ts

- **DON'T** try to shorten finishing time by bearing down on the wheel. This will overheat the work and tint the metal.

- **DO** break in a fresh wheel or belt on scrap of the same analysis. This is especially important when making grit comparisons for a finish match.

- **DO** clean the metal surface when changing grit size.

- **DON'T** try to remove too much metal with a fine abrasive. A fine grit will remove more metal from a surface roughened by coarse grinding than from a smooth surface.

- **DO** keep abrasive scratches straight and parallel.

- **DO** avoid spotty overpolishing and lift wheel above work before reversing the stroke.

- **DO** protect polished surfaces outside work area with adhesive paper.

IN THE APRIL ISSUE, the author will conclude his report with a study on buffing, satin finish manufacture and tampico brush finishes. Special polishing procedures will be detailed. Finishing weld beads and barrel polishing will also be analyzed in Part Two of "How to Surface Finish Stainless Steels" in *finish* for April.

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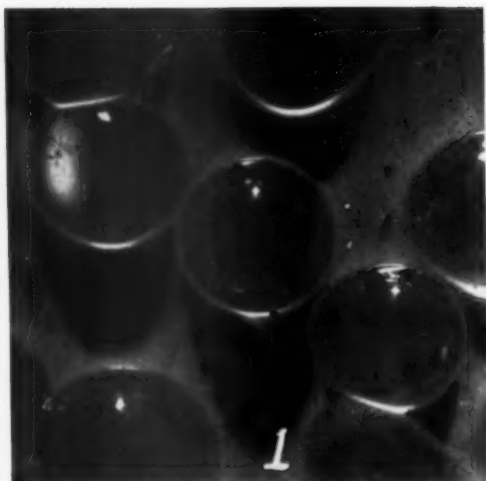
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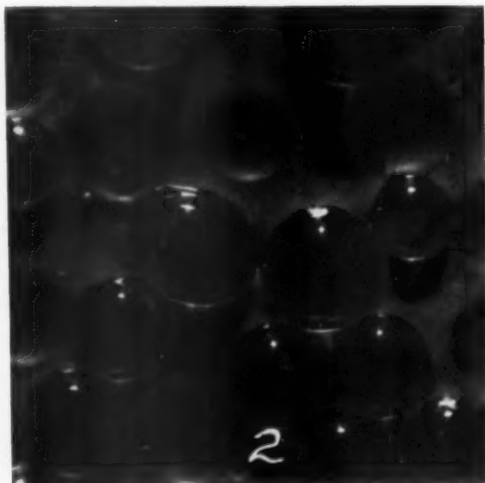
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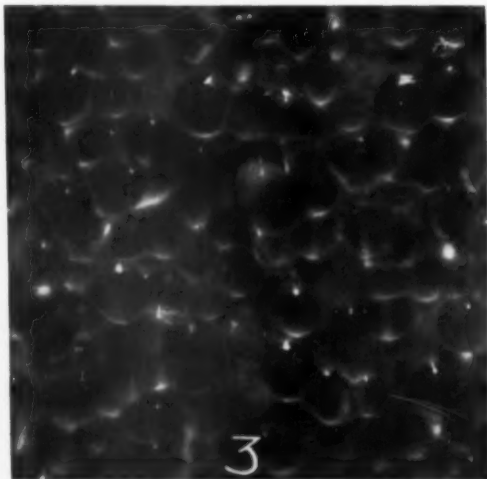




PANEL ONE: This shows No. 6 glass beads (30-40 mesh size) correctly fused to a titanium enamel panel.



PANEL TWO: This shows No. 8 glass beads (40-50 mesh size) correctly fused to a titanium enamel panel. This is the size used in the color panel on facing page (No. 2, top row, lower photo), and is considered more effective than the No. 6 size.



PANEL THREE: This shows No. 10 glass beads (50-62 mesh size) where extreme temperature has caused a severe deformation on titanium.

You can use reflective beads with porcelain enamel

by *D. C. Bowman* • SENIOR CERAMIC ENGINEER
CHICAGO VITREOUS CORPORATION

IN RECENT YEARS there has been a phenomenal increase in the use of materials incorporating small light-reflective glass beads. These materials are used in the attention-arresting traffic signs and markers that line our highways, and the eye-catching roadside advertising signs that dot the countryside. Light reflective substances mark bridge piers, car bumpers, truck bodies, house numbers, airport lanes and marine buoys and channels.

Why use reflective beads?

Is it possible to use these reflective beads with porcelain enamels? Does their use increase the light-reflecting properties of porcelain enamel?

The answer to the first question is yes, but it involves finding how to fuse the reflective beads tightly to the enamel surface. The second question is best answered by an actual demonstration.

Three adhesive methods

Three possible methods of temporarily holding the beads on the porcelain enamel before fusion are immediately suggested:

- (A) Sprinkling the beads into wet bisque cover coat enamel.
- (B) Sprinkling the beads onto "tacky" screened enamel letters or backgrounds on fired cover coat.
- (C) Sprinkling the beads onto "tacky" adhesive substances

applied all over fired porcelain enamel signs or markers.

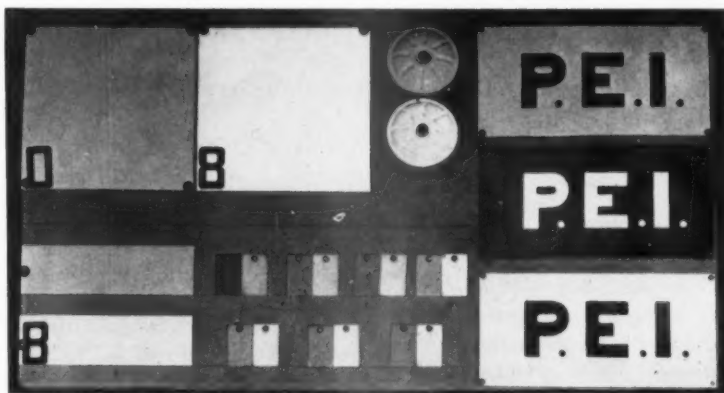
Testing of methods

The difficulties of control involved with Method "A" are believed to render it rather impractical. Methods "B" and "C", however, were investigated and found to work very well. Most work was done with Method "C", which entails coating the fired enamel with an adhesive substance to hold the beads before fusion. This procedure was found the most simple and flexible. Successful results may be attained by brushing a thin layer of a clear lacquer/pine oil mixture on fired enamel signs and panels, and then sprinkling reflective glass beads onto the "tacky" surfaces. The pieces are subsequently fired in a horizontal position at approximately 1400°F. for 3 minutes to fuse the beads to the porcelain enamels. It is very important to fuse the beads to the enamel at not more than 1400°F. This avoids deformation of the beads or excessive "sinking" into the enamel. If either of these two defects occur, the light reflecting properties of the beaded porcelain enamel are drastically reduced.

The size of the beads used has a decided effect on the light reflective properties of the piece. Coarse sizes #5 and #6 (20-30 and 30-40 mesh) give only intermediate results: medium sizes #8 and #10 (40-50 and 56-62 mesh) appear to give excellent

Signs of the Times — New Look, and New Life, with Reflective Beads

VIVID PROOF of the advantages in using reflective beading with porcelain enamel is shown in these photos. Top half of the 1st, 2nd, 4th and 5th panels in top row have been beaded in a variety of colors. All lettered signs are of beaded enameling, while all color panels are half and half. Note grayness of non-beaded areas. Numbers on signs signify bead size. See column at far left. Colors



ranging from light green to light yellow were used in the test panels. The photo was taken in a darkened room with diffused No. 2 photoflood light source on the camera to show the increased light reflecting properties of reflective glass beads fused to porcelain enamel. An analysis of these panels appears in the accompanying article. The author does mention, too, that the intensity of the light reflection increased with the distance from the panel.

results, while the very fine sizes, #13 and #18 (95-120 and 120-140 mesh) produce poor reflective surfaces. Size #8 seems to be the best choice for general use. Approximately 39 grams (1.4 oz.) of this size per sq. ft. are required for complete coverage. The price of reflective glass beads ranges from 29 to 65¢ per lb., depending upon the quantity purchases. They are commercially available throughout the country.

Although practically any white or light colored porcelain enamel may be used, the porcelain enamels which seem to be most effective with reflective glass beads are the high reflectance blue-white titania opacified enamels which fire from 1450° to 1480°F. The most efficient light reflectance is gained by having a maximum of white or light colored area in the sign or marker. If colors are

desired, the light blue, yellow, green, orange and pink enamels are the most suitable. Over dark red, blue or black enamels, the beads display very little light reflectance.

Early experimental work led to the belief that the use of reflective beads with even light colored enamels was impractical, but further work with reduced fusion temperatures produced excellent results. Temperatures as low as 1370° to 1380°F. may be necessary to avoid "drowning" the beads.

Demonstration of properties

The properties of beaded reflective porcelain enamel may best be demonstrated by darkening the room and lighting the samples from a distance with an incandescent lamp. It will be noted that the reflected light in all cases is directed nearly straight

back to the light source and the maximum effect is gained by the observer situated along the light path.

In the accompanying photograph the unbeaded samples are on the left or the top of the sample arrangements. It may be seen that the beaded pieces reflect strongly, while the unbeaded porcelain appears gray or indistinct in the dim light. The numbers on the display panels indicate the size of the beads used in their preparation and illustrate that the medium sizes #8 and #10 appear most effective.

The weather resistance of these signs is believed fully as great as that of the porcelain enamels with which they are prepared. After outdoor exposure for one year in the Chicago area, an experimental beaded porcelain enamel sign has shown no signs of deterioration.

PYRAMID

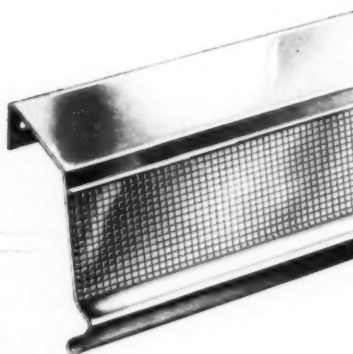
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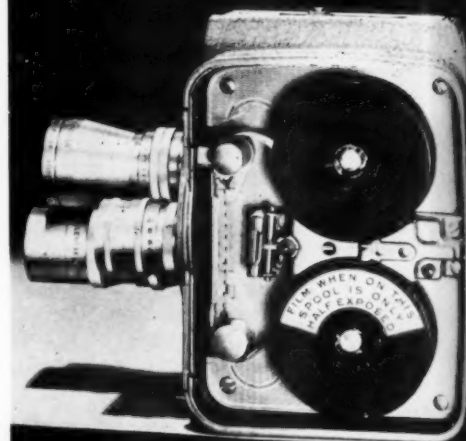
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Exposed side view of turret-type camera. Lens, film and operating mechanism mechanically fastened to die cast housing.

Use light metals

IN THE highly competitive slide projector field many factors determine the consumer's choice of a projector — degree of automation; appearance; light weight; durability; photographic reproduction factors such as light intensity, color rendering and lens quality; and a reasonable retail price. To meet these marketing requirements, engineers of Revere Camera Co., Chicago, Ill., decided upon the use of aluminum die castings for a new 35 mm projector which shows up to 36 slides automatically at a predetermined pace and requires no operator.

Working in cooperation with a Chicago job-shop die caster, Revere developed a one-piece, thin-walled, intricately shaped aluminum housing for the projector. A detachable hood casting that fits on top of the housing, simplifies servicing and increases the effectiveness of the projector's cooling mechanism.

Die cast in one piece, the intricately shaped housing forms the four walls and the top. The die is precisely cored for the lens cavity, operating control knobs, slide magazine which passes through from back to front, and elevation and level control knobs. Cast-in studs position and secure the housing to the base. Because die casting permits the design of very thin walls, the aluminum hous-

MARCH • 1956 finish



Aluminum components, lens mounting plate, lower left, 2 sides of housing, top and right. Note cast groove light traps.



Die cast lens mounting plate, shown in photo left, lower, finished in wrinkle, is attached to front of assembled unit.

Castings for camera, projector

engineers use cast aluminum to achieve needed compactness and light weight in two products where extremely important

ing is one of the main features contributing to the projector's light weight. An attractive "wrinkle" finish is applied to the housing.

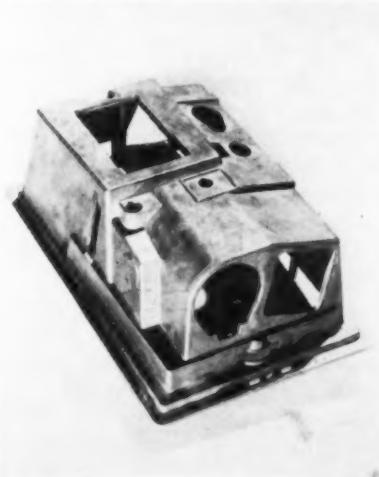
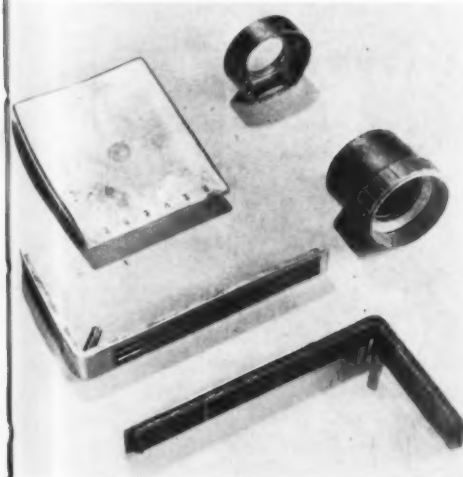
Made as a separate die casting, the L-shaped hood is also wrinkle-finished and blends in with the housing when assembled to it. Simple removal of the

hood — rather than disassembly of the whole projector — leaves the projector's bulb readily accessible for replacement.

The two lens castings are close-tolerance pieces that are designed to hold the 5 in. F3.5 lens elements permanently in position. The OD of these lens housings must be accurate enough to insure

Five die castings, plus housing, are in this unit. Clockwise from bottom, twin honeycomb grilles, hood and lens units.

Housing for Revere 888 projector is intricately shaped, thin walled, precisely cored, and has a smooth surface finish.



a tight fit in its mounting, thus preventing slippage after focus adjustment. Designed primarily for their appearance-enhancing value, the projector's two grilles mount in the front of the base and carry around to the machine's sides. The honeycomb grilles are not unlike the larger honeycomb front ends found on automobiles.

Revere's decision to die cast aluminum for these various components was based on several considerations — appearance, light weight, flexibility of design and mass producibility at low cost. The result is a new concept in slide projectors because the "888" converts the work of viewing into a truly automatic operation.

Turret-type movie camera

To design an 8 mm precision movie camera, incorporating a turret with three different interchangeable lenses, the DeJur Amsco Corporation, Long Island City, N. Y., turned to its industrial designer, Monte L. Levin, New York City. Mr. Levin's main problem was to concentrate a great deal of mechanism in as small a package as possible. He came up with a design which was recently introduced to the market as the DeJur Spectator Turret.

The main feature of the new camera is the smooth, functional appearance, which has the "precision instrument look". According to Mr. Levin, the only way this could be achieved was by the use of the three-piece aluminum

to Page 59 →

Visible die castings in completed unit are projector housing, hood (upper left) lens frame and honeycomb grilles.



Storage facilities for coated abrasives

you'll get greater economy, better results if temperatures and humidity are properly controlled

THE right combination of controlled temperature and humidity keeps coated abrasives at their optimum grinding and finishing efficiency and assures ease of handling and use.

Climatic conditions may have an effect on any coated abrasive at some time or other, whether the user is located in what is normally a "dry" climate or one which is generally thought to be "damp".

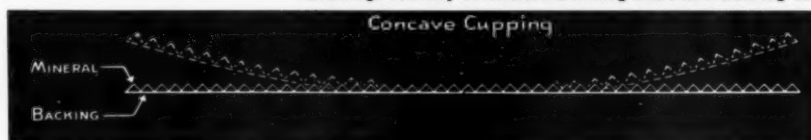
Ideal storage conditions are indicated as: 1) a constant storage temperature of between 65 and 75 degrees F, and 2) a controlled relative humidity of between 35% and 50%.

Generally speaking, coated abrasive grinding and finishing efficiency increases as humidity decreases. However, when a coated abrasive product is allowed to dry out too much, brittleness, cupping and difficulties in handling nullify the advantages of increased cut. At between 35% and 50% relative humidity, the abrasives offer an ideal combination of cutting efficiency and ease of handling.

Poor storage conditions may effect



Drawings courtesy of Minnesota Mining and Manufacturing Co.



coated abrasives in one or more ways. Excessive humidity, for example, may cause a softening of the bond (particularly in the case of glue bonds) so that when the mineral grains are presented to the work they tend to push into the backing or lay over on their sides instead of penetrating the work stock.

Excessive dryness, on the other hand, causes brittleness which creates difficulties in handling; possible mineral loss due to the brittleness of the bond, or convex cupping (that is, with the mineral side out) due to shrinkage of the backing as it dries out.

Storage recommendations

These storage recommendations are offered for abrasive users.

1. Store coated abrasives on pallets, in bins or on shelves, out of direct sunlight.
2. Leave the coated abrasive materials in their original packages until ready for use to modify the effects of rapid changes in temperature and humidity.
3. Avoid use of storage areas which might be subjected to alternate hot and cold, or wet and dry, cycles.
4. Store coated abrasives away from heating equipment or steam lines.

Taking such simple storage precautions will pay off in continued optimum service. It noted, for example, that glue bond papers have been stored for 10 years at approximately 50% relative humidity and 70° F. without noticeable deterioration.

For geographical locations subject to rapid or extreme seasonal changes in climatic conditions, good storage can be provided through the use of cabinets or entire rooms, depending on the volume of abrasives consumed. Such storage facilities range from a simple 55-gallon drum or airtight metal cabinet to a walk-in unit.

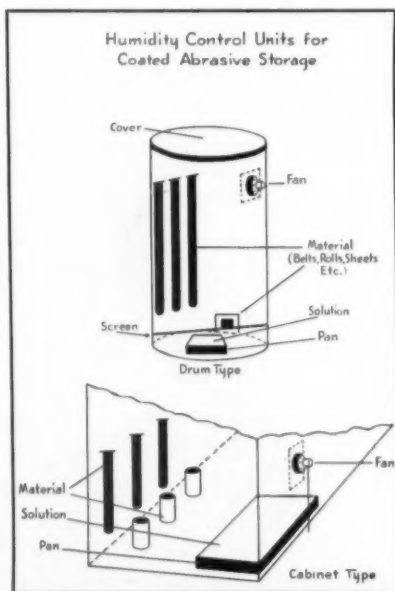
Storage conditioner suggestions

The smaller type conditioner is made by placing an enameled pan about 9" x 18" x 2" in the bottom of the drum or cabinet. The pan will hold a saturated solution of a humidity control chemical mixed with water. A heavy screen is placed over the pan to prevent the abrasives from touching the solution. Necessary air circulation is provided by installation of a small fan in the side of the drum near the top, with the motor on the outside to eliminate chances of corrosion.

The cover of the container should fit tightly, yet allow easy access. Flat-type stock (such as sheets and discs) are placed on the screen for conditioning; short belts are hung on hooks attached to the inside of the barrel.

It should be noted that it takes a minimum of about three days to condition coated abrasives which have been affected by humidity. Therefore, it is necessary with the smaller type of unit to anticipate future needs.

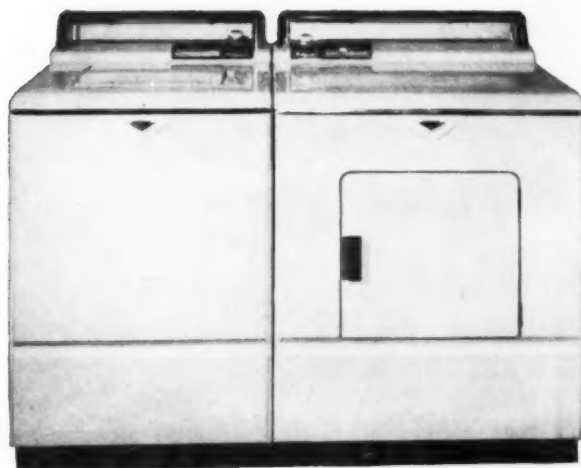
to Page 59 →



look...

it's

TITANOX®



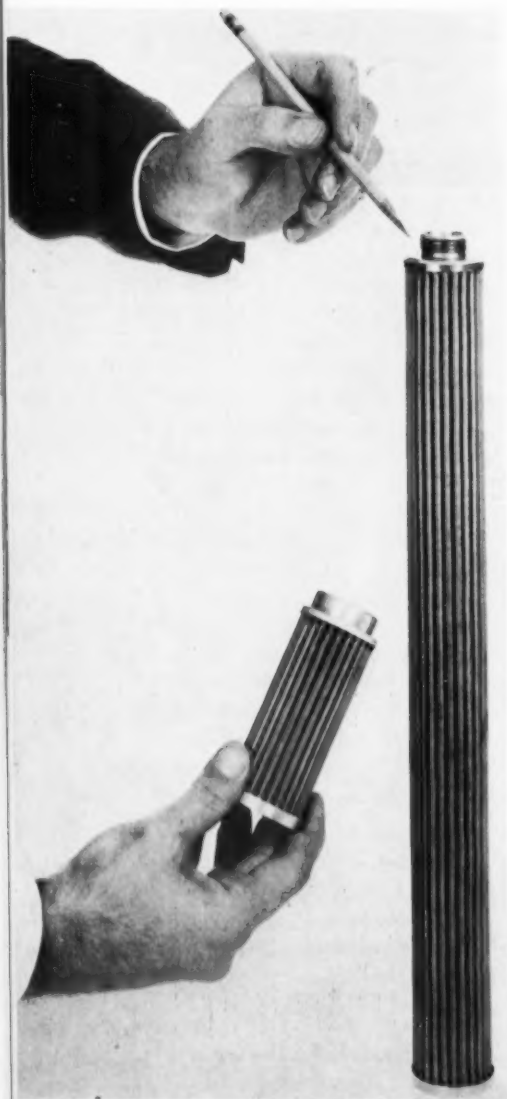
TITANOX-TG is the titanium dioxide developed specifically for titania porcelain enamels. It yields greater opacity, assures unvarying color uniformity, faster and more economical production.

Through the use of TITANOX-TG, tough, paper-thin porcelain enamels were first made possible. Today, this type of coating beautifies nearly every major appliance. And TITANOX-TG is the logical basis for all such formulations. In porcelain enamels, as in paints . . . plastics . . . paper . . . rubber, TITANOX assures you of the whitest whites, the highest hiding power, and strict uniformity. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; Atlanta 5; Boston 6; Chicago 3; Cleveland 15; Houston 2; Los Angeles 22; Philadelphia 3; Pittsburgh 12; Portland 14, Ore.; San Francisco 7. In Canada: Canadian Titanium Pigments Limited, Montreal 2; Toronto 1.

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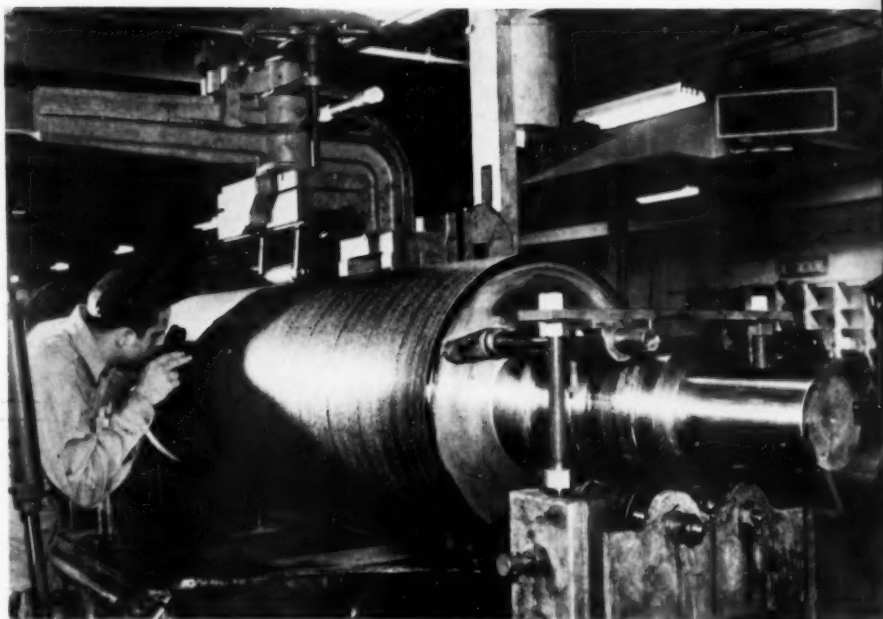
finish foto-news

selected photographs showing equipment, operations, and processes of interest to manufacturers of fabricated metal products



A new sintered filter with remarkable versatility has been introduced. Capable of handling fluids ranging up to 1,000° F., it can take flow rates comparable to any hi-temp filter in existence with lower differential pressures and a better degree of filtration, it is reported. Available in a variety of lengths, the filter can remove particles as small as one micron in size from a wide range of fluids, including such hot ones as nitric, sulphuric and hydrochloric acids. Purolator Products, Inc., Rahway, N. J. produces the units.

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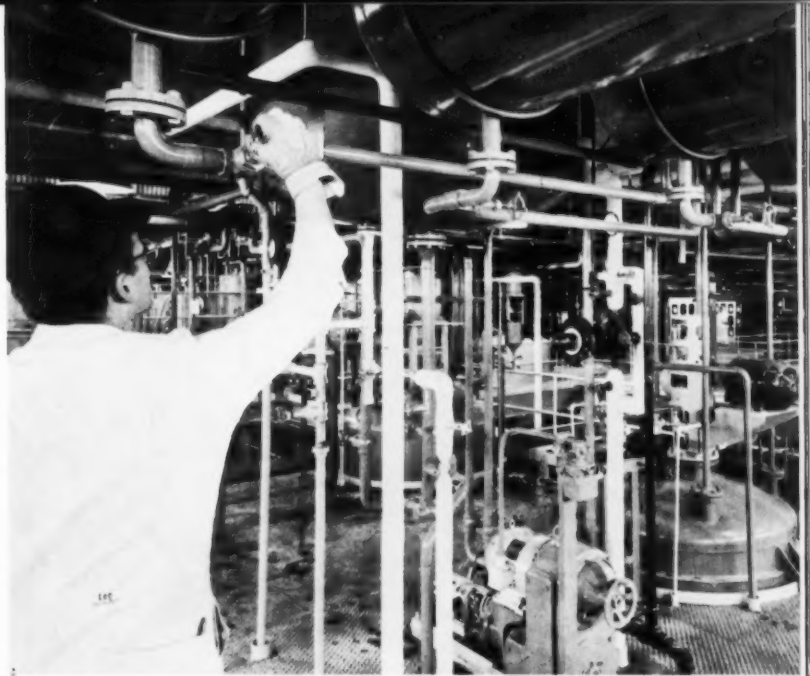
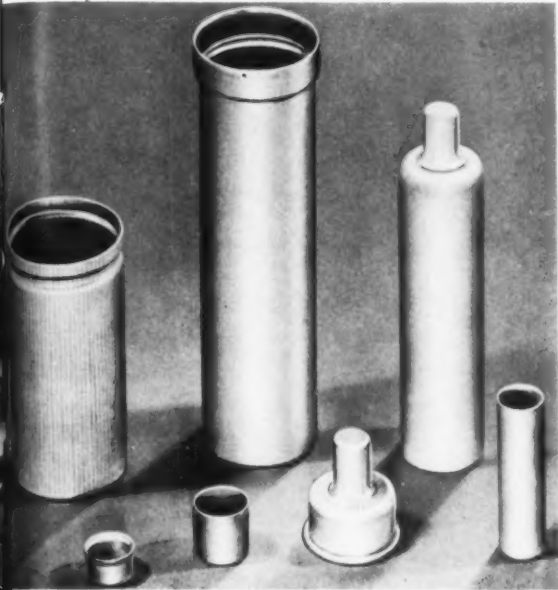
Largest embossed forged steel roll engraved to date by the Modern Engraving and Machine Co. is shown above in process. Photo illustrates operation with the roll receiving the impression via the die roller, under pressure. The forged steel roll was furnished, machined and readied for engraving by the Standard Steel Works Division of Baldwin-Lima-Hamilton Corp., Burnham, Penn.



Adaptability of the techniques for printing photos or art on the anodized layer of a photosensitive plate was shown recently when Kaiser Aluminum and Chemical Corp. used the method for producing some promotion pieces. At left, the photo shows the program for Ka&C's opening day at its Disneyland aluminum exhibit. It is printed on aluminum using the method developed by the Metalphoto Corp., Cleveland. The program detailed step by step, the opening day activities. The method developed by Metalphoto, has much potential for manufacturers seeking "extra sell" in their aluminum products, with the plus value of being a "attention getter" due to the unique process.

MARCH • 1956 finish

Full scale commercial production of impact extrusions for industry has been launched by General Batteries, Inc., Cleveland. With their recent conversion completed, the company now has available the latest in horizontal and vertical presses, heat treating facilities, and metallurgical accessories, to produce a wide variety of cylindrical and rectangular parts.



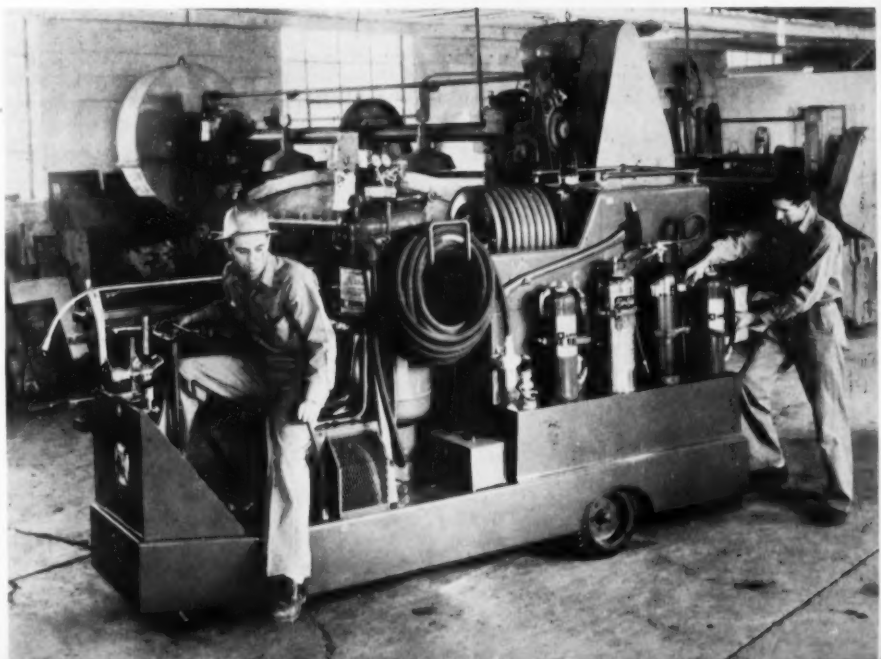
Having more than doubled their facilities for manufacture of dimethyl silicone fluids and immulsions, the Dow Corning Corp. has now announced a 7½ cent reduction in price, according to a company announcement. Complexity of the formulation of the silicone products is well illustrated in the photo above, showing the final staging facilities of the new operation, where the finishing is accomplished by utilizing this array of pipes and tanks. Silicone fluids are earning increased acceptance by the paint industry as anti-flooding, floating and blushing agents, the company pointed out.

Quality control checking tools are now being produced with a dimensionally stable compound based on Bakelite epoxy plastic. This offers all the advantages of metal check-plates at much reduced cost, it was announced. A reduction of some 40% in time and cost was achieved by the McQuinn Aircraft Corp. using the plastic to make die-models to check tolerances in the manufacture of air force Voodoo fighter parts. The photo at right shows how tooling

compounds formed into check-plates on the original master model. To protect the working surface of the molded form, epoxy tooling materials, reinforced with fibreglas cloth are laminated on as a surface shield. The light-weight tubular frames for the tools were also made of this epoxy laminate. Result: a female master tool weighing 56 pounds (90 percent epoxy). Made of steel the same tool would have weighed 260 pounds. The units are used to check dimensions of formed panels.



Especially adapted to the needs of plant fire brigades, a new line of easily maneuverable in-plant fire trucks has been introduced by the Ansul Chemical Co., Marinette, Wis. Designed to carry a wide assortment of fire fighting equipment, the trucks are being manufactured by St. Clair Industries, Inc., Detroit, Mich. Available in six basic models, the KB-8, shown in photo at left, features a 300 lb. ansul dry chemical unit backed by a 150 gallon water fog system. It is expected to find the widest application in industry, officials announced. The units are offered on either a 3-wheel 42" wide base, or a 4-wheel base for indoor-outdoor use. Full accessory equipment is available with adequate bracket space and cabinet room provided.



Try Century Vit

TITANIUM WHITE



1. COLOR STABILITY
2. HIGH REFLECTANCE
3. HIGH OPACITY

4. GLOSS
5. TEXTURE
6. WORKABILITY

With Century Vit Titanium cover coat over Century Vit ground coat enamel you have an unbeatable combination for adding beauty and durability to your appliance or other metal product.

Century frits are time proved in production plants before they are sold to you. The titanium frits give you the six characteristics: color stability, high reflectance, high opacity, gloss, texture and workability, so important to your plant and finished product.

Then too — you will save money 1) in frit cost and 2) on the production line.

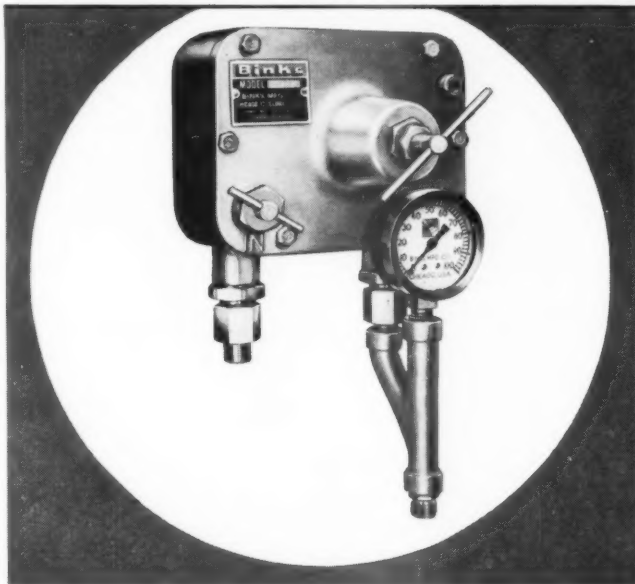
A Century field engineer can show you how to improve your product and save money too if you will let us hear from you now.



CENTURY VITREOUS ENAMEL COMPANY

• 6641-61 S. Narragansett Ave., Chicago 38, Ill. •

WHAT'S NEW in porcelain enameling



Hotpoint hails new Binks Ceramic Regulator and Circulating System as major developments

"Your new PM-120 Ceramic Regulator has opened the way to higher quality and better manufacturing cost here at Hotpoint," says David M. Root, General Foreman of Hotpoint's Chicago Range and Refrigerator Enameling Department. "We are delighted with the performance of this regulator. You have licked a problem that has been a real handicap to better enameling."

The new PM-120 Ceramic Regulator mentioned by Hotpoint, is the first practical device of its kind. It is an important part of a Binks Ceramic Circulating System installed at Hotpoint for testing under shop conditions.

The economies effected at Hotpoint are inherent in a circulating system:

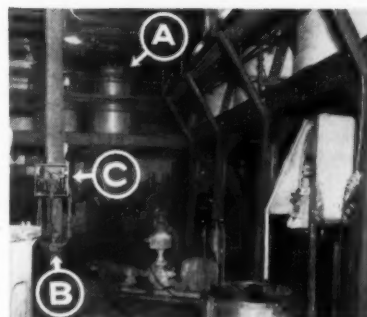
1. Close control of all materials. Mixing is done in the mill room under

laboratory conditions. Chances of contamination are minimized.

2. All guns spray identical materials. This cuts down on the rejects.

3. It reduces material handling to a minimum. You have a cleaner, neater and safer plant by doing away with pressure tanks and connecting hose.

Until now ceramic circulating systems have been impossible because no suitable regulator has been available...but Binks new PM-120 Ceramic Regulator solves this problem. It accurately controls the flow and fluid pressure of porcelain enamels and ceramic glazes. It maintains the desired fluid pressure at each spray station, regardless of its location on the pipe line. Again, another Binks first leads to better finishes...higher efficiency.



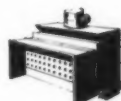
View of the Hotpoint mill room, showing Binks (A) material tanks, (B) pump and (C) controls used in the new Ceramic Circulating System.

FOR FURTHER INFORMATION

If your plant has multiple spray stations applying ceramic finishes, it will pay you to investigate the economies of a Binks Ceramic Circulating System equipped with Binks PM-120 Ceramic Regulators. Let us tell you more about it. Just write to the address below:



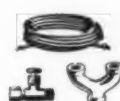
GUNS



SPRAY BOOTHS



EXTRACTORS



ACCESSORIES



FREE INSTRUCTION

Binks Manufacturing Company 3122-40 Carroll Ave., Chicago 12, Illinois

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*Fosbond Process made **EVEN BETTER**
with new, improved*

actidip

- Lowers effective coating weight as much as 70%
- Reduces maintenance costs by cutting down sludge
- Gives more and better surface activation at reduced cost
- Gives you one-coat finishing

Pennsalt Fosbond® coatings owe their remarkable reliability to better surface activation by new ACTIDIP®. Now, a pre-Fosbond bath with ACTIDIP brings about even greater crystal refinement, prevents powdering, allows finishing with a single coat of paint. New, improved ACTIDIP, used as a pre-rinse, reduces subsequent zinc phosphate coating weights up to 70% over those coatings applied without surface treatment. As an ingredient in Pennsalt Activated Cleaners, ACTIDIP activates during the pre-cleaning cycle and reduces zinc phosphate coating weights by as much as half.

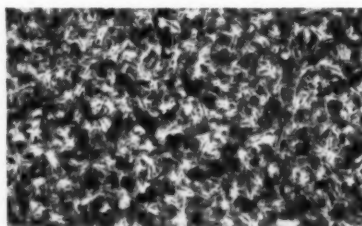
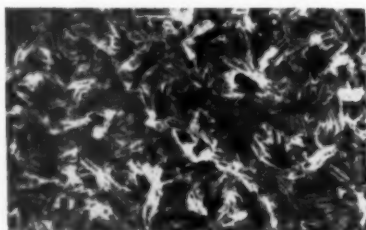
With recent improvements in formula-

tion, ACTIDIP makes your job easier, boosts your coating quality: (1) Free-flowing and non-caking, *new* ACTIDIP dissolves more easily, speeds tank charging; (2) ACTIDIP has greater stability, will not lose its superior activating power at higher cleaning temperatures; (3) ACTIDIP, alone or in a Pennsalt Activated Cleaner, reduces sludge and maintenance costs in the phosphating bath.

Two convenient forms. New, improved ACTIDIP comes to you in a choice of two forms: (1) Super ACTIDIP Powder for use in its own activating bath between cleaning and phosphating; (2) Pennsalt Activated Alkaline Cleaners

for soak or spray cycles—cleaning and activation in one bath. Either form you choose gives your organic finish a better start towards corrosion-resistance, long-lived luster, and lower cost.

Find out why Pennsalt's Fosbond Process means the best in phosphate coatings, and how ACTIDIP can bring you better finishing at lower costs. Ask your Pennsalt man or write Metal Processing Dept. 279, Pennsylvania Salt Manufacturing Company. East: Three Penn Center Plaza, Philadelphia 2, Pa.; West: Woolsey Bldg., 2168 Shattuck Ave., Berkeley 4, Calif. In Canada: Pennsalt Chemicals of Canada, Hamilton, Ontario.

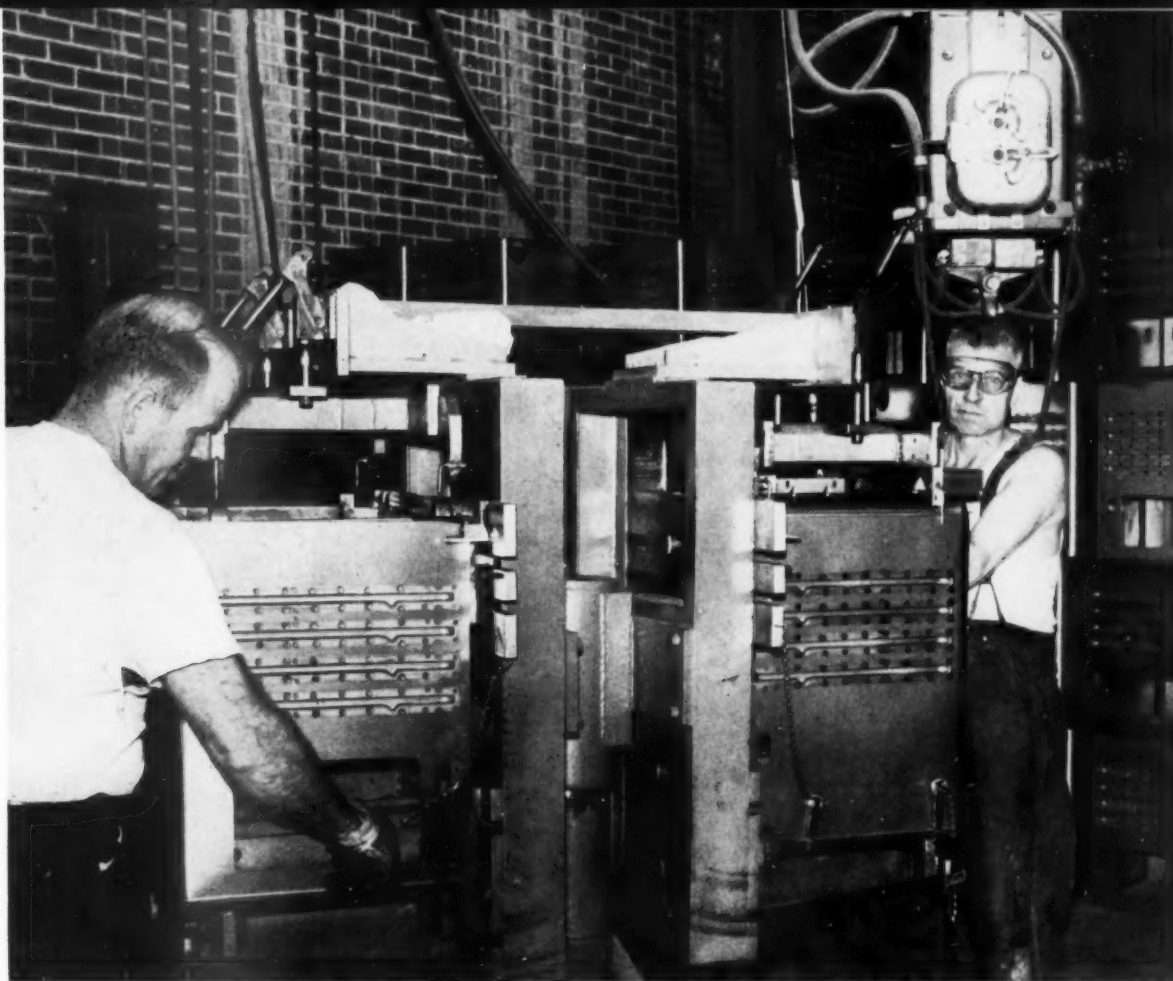


Sensational reduction in phosphate-coating weight is shown by these photomicrographs (enlarged 84 times). Untreated panel (left) requires 1006 mg./sq. ft. for adequate phosphate protection, while ACTIDIP-treated panel (right) requires only 279 mg./sq. ft. for effective coverage.



Metal Cleaners • Phosphate Coatings • Cold-Working Lubricants

A B E T T E R S T A R T F O R Y O U R F I N I S H



Spot Welding — of the gas range oven parts is done on this jig which holds the parts in rigid alignment while the spot welding is being accomplished.

Caloric streamlines its material flow pattern

new highs in efficiency result of planned expansion . . here is your "plant visit in print" so you, too, can tour the Tipton gas range plant operation

**Exclusive
feature**
finish

The first issue of *finish*, published in January, 1944, carried an article on the Caloric Gas Stove Works, Tipton, Pennsylvania. But (as a lawyer would say it) this present article does not imply or intend to portray any resemblance between Caloric Gas Stove Works of 1944 and the Caloric Appliance Corporation as we find it today. Under the leadership of Nathan Klein, who authored that 1944 article, and is now serving as chairman of the board of directors, the present corporation has grown and expanded beyond any basis of comparison. The company line has been broadened to

include gas incinerators and clothes dryers as well as gas ranges, and its production facilities have increased and expanded accordingly.

Achieve expansion w/o interruption

An interesting facet of this expansion program is the method by which new facilities have been added without serious interruption to production or impairment of material flow along the various production lines.

Careful pre-planning and intelligent material routing was required to accomplish this. When a new building or plant addition was erected, it was not considered as auxiliary to existing pro-

duction facilities but was incorporated in existing production facilities in a manner to increase their output.

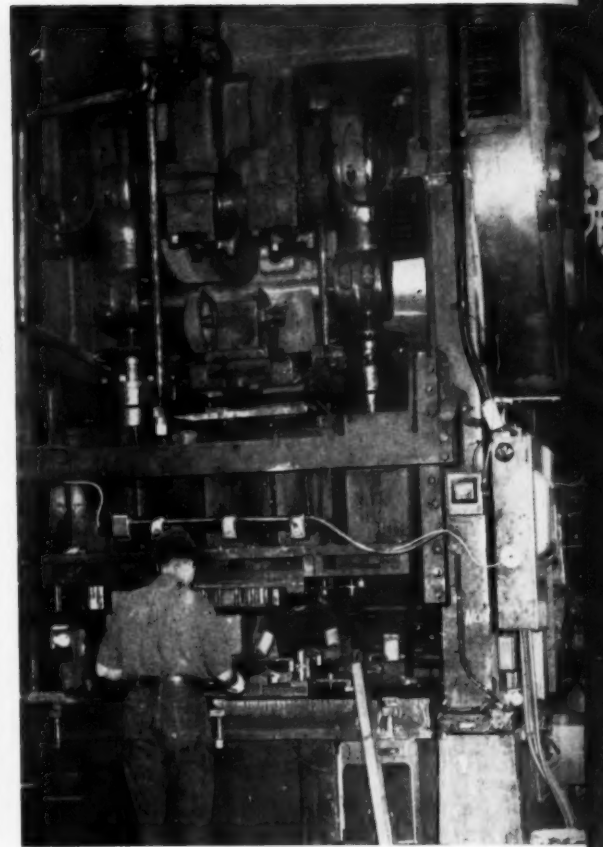
A trip along the current Caloric Appliance gas range production line, for instance, leaves an overall impression of straight line material flow from raw stock to finished range. The buildings, the process sequences, the assembly operations and the conveyor systems that thread the plant are all arranged to this end.

Caloric's gas range line

When products from an auxiliary line, such as the foundry, are needed, they feed into the main assembly line



Press line—at Caloric's sheet metal shop where some 1,000 appliance parts are produced. Some 50 tons of sheet is used daily.



Single stroke operation—to pierce and extrude a gas range top is achieved by means of this huge press.

CALORIC CONTINUED

at the point where they will be used. The same applies to purchased parts. Accumulations of in-process work are avoided at all points except in the supply bays along the final assembly line. Sub-assemblies which might interfere with or impede final assembly work are handled in a separate department, then added to the range at the appropriate time. Range backs, which include automatic timers, clocks, thermostats, controls, etc., fall into this category.

Details on production

Range production starts in the shear department where approximately 1000 different sheet metal parts are blanked to size. Some 50 tons of sheet metal are used daily in this operation.

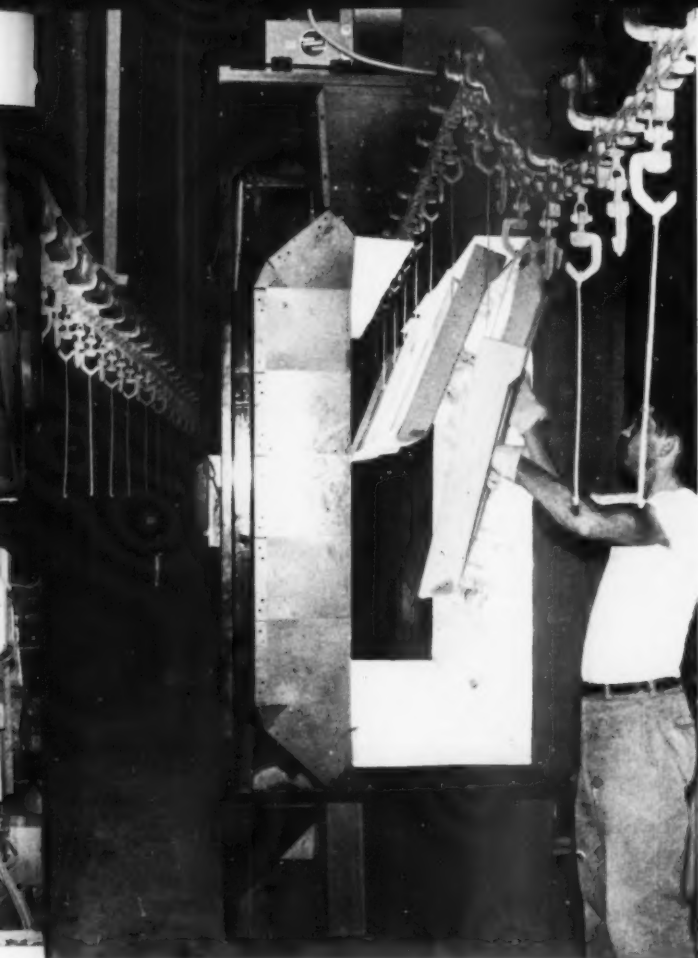
The blanked parts are then sent to the press department for such forming, piercing, extruding and embossing as is required.

50 to 500 ton presses used

Presses, ranging in size from 50 to 500 tons, are used. Press dies are made



Sub-assembly—of gas range components is accomplished here as shown in above photo. The assembled component is then placed in its bay along the main assembly line.



Infra-red drying—ground coat for all white ware at Caloric's plant is dried in this oven, then transferred to the main furnace line.



Ground coat firing—accomplished in furnace in background is then done and the ware is inspected as it is conveyed.

in the company's own tooling department. Both single and double action dies are employed, along with occasional staging or multi-stroke progressive dies that will accomplish several forming operations in a single set-up.

Formed sheet metal parts are then fed into the spot welding department for the initial sub-assembly operation. Some parts are joined in a simple "hand match and weld" operation. Others are jigged prior to welding. Most of the sub-assemblies leaving this department are large enough for practical conveyerization as individual units; the remainder are conveyed in baskets or containers.

Designed for efficiency

As an example of plant engineered efficiency, the metal cleaning and pickling department is located in a spacious corridor that joins the press department to the enameling department. Thus, in the course of travel from one department to the other, the parts normally pass through this area. Eleven deep solution tanks are available, and ma-

Insulating—as the picture shows, this application on the range is accomplished on the assembly line as the gas range heads for its final completion. Each range is now on its separate wood pallet.





For Over 30 Years...

Chicago Vit Frits have
been helping *Caloric* Stove
Corporation produce top
quality home appliances



Over the years Chicago Vit has concentrated great effort on research and development of new frits for specific applications to serve the needs of a growing appliance industry. Because of this pace-setting progress we have been chosen to supply our frits year in and year out in plant after plant. A typical example is Caloric Stove Corporation, Tipton, Pa. Ever since the 1920's Chicago Vit has worked closely with Caloric to help them produce appliances with better-than-ever porcelain enamel finishes. Today Chicago Vit frits are used on every major appliance in the Caloric line.

No matter what special service condition your product may have to meet you can be sure there's a Chicago Vit frit to meet it. You just tell us the facts and we'll tell you the frit or frits you need.

FOR FINEST FRIT — CHICAGO VIT



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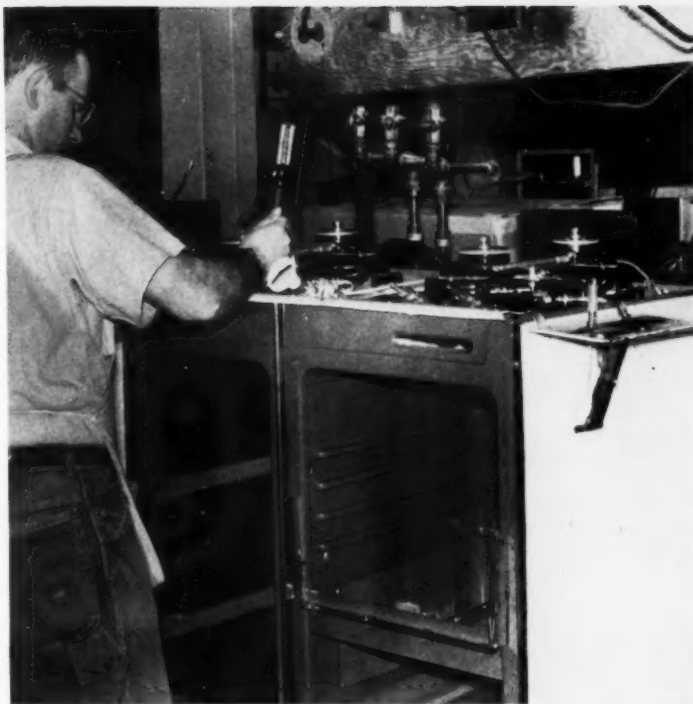
CALORIC CONTINUED

terial is handled through them by means of large baskets and an overhead conveyor system equipped with hoist.

Two ground coat lines are used, one for interior and invisible parts which will receive ground coat only, and another for tops, oven fronts and other parts that will receive a white coat. Ground coat parts are either dipped or sprayed in an automatic spray booth, then conveyed through a conventional drying oven. White parts are hand sprayed, then dried in an infra-red oven. The chains from both drying ovens then converge at a common transfer point on the main furnace conveyor line.

The ground coat furnace, electrically heated, contains a 64 ft. hot zone. Conveyor travel through the furnace is set at about 150 inches a minute, with an overall burning time of five minutes. The fired ware is then inspected and routed to the assembly department. Work requiring a white coat is transferred to another conveyor for delivery to the white coat booth where it is sprayed or dipped, dried, brushed, then burned in another electrically heated furnace with a 35 ft. hot zone. After burning, each piece receives 100 per cent visual inspection before being sent on to the assembly department.

The mill room, used in conjunction with the enameling department, is a model of efficiency. Overhead frit storage is provided, with hopper feeds for each of the larger ball mills. Eight mills are available, one each of 5000, 3000 and 2000 lbs. capacity, two of 1000 lbs. capacity, and three of 500 lbs. capacity. When the slip is ready for use, it is screened and passed through a centrifugal sieve into a pump which



Testing — is done on each gas burner and the oven burners of each range before the Caloric range top and oven doors are installed . . . a quality check to assure a perfect finished product.

elevates it to overhead storage tanks. When withdrawn for use, it is again screened and centrifugal sieved into 60 gal. pressure spray tanks.

Parts arriving in the assembly department from the enameling department are removed from the conveyor and stored in specific bays along the assembly line at point of use. Foundry parts and purchased parts are similarly stored. Sub-assemblies are bench-assembled, then travel to bays along the final assembly line.

On the final assembly line the main frame for each range is assembled on a separate pallet. This frame-on-a pallet is then placed on a roller-type conveyor, and the various stove components are added as the ranges pass along the line. At one point in the line all burners are

checked and tested before the top and oven door is installed. The ranges remain on the pallets until they have been completely assembled, inspected and reach the shipping department. "Built-ins" also follow this same final assembly pattern.

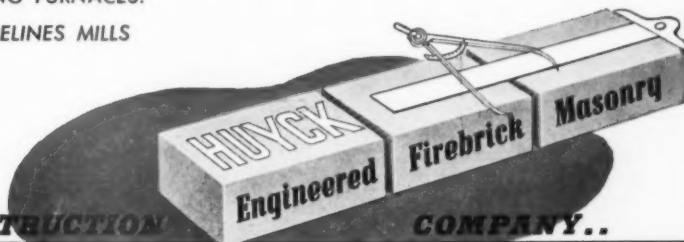
Meanwhile, in a separate department the range backs are being assembled and the various control instruments installed. The range backs join the ranges in the shipping department where they are individually cartoned, then inserted in the main container used for the range.

In the packaging operation each range is automatically lifted from its assembly pallet, then tilted so that the wooden bottom can be bolted in place. The same lifting device then sets the

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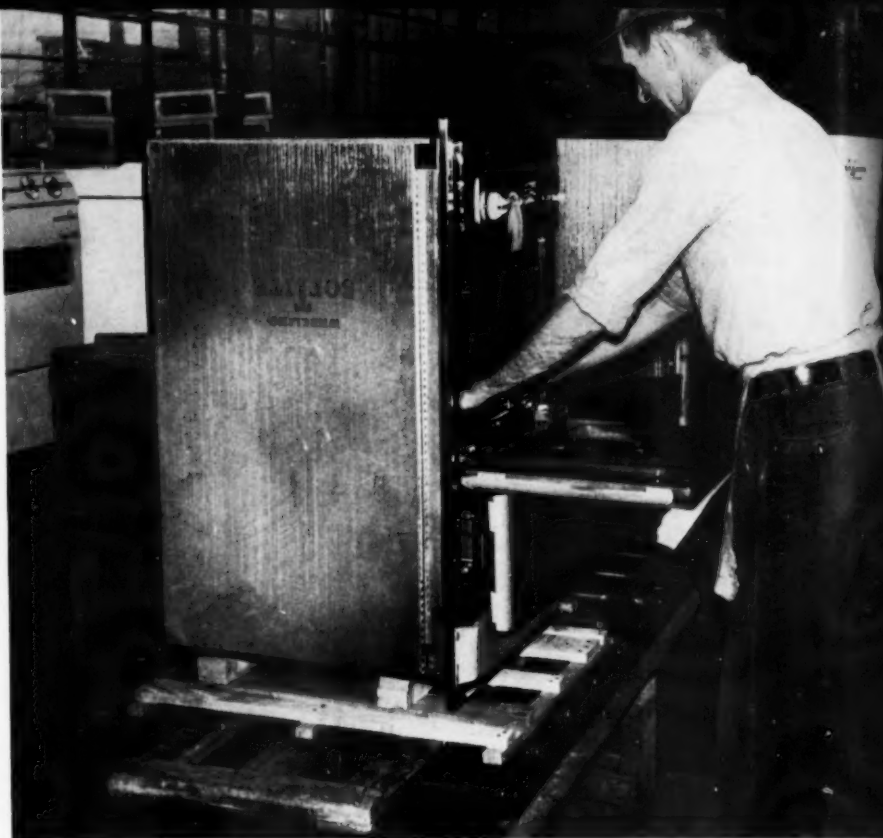
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CALORIC CONTINUED

range and carton bottom on a roller-type conveyor that serves as the packaging line. Corrugated container bodies are then pulled downward over the range, properly attached and sealed. The range is then ready for shipment.

The outstanding feature of the Caloric Appliance range production line is the flow and convergence of raw materials toward the finished product. It is not a "stop and go" line, where a few outstanding features operate at the expense of others. Rather, it is a well balanced line, with each segment geared to accept and deliver a fixed quota of work during a fixed interval of time. Overloads and shut-downs for lack of work are the exception, not the rule.

The uninitiated may regard such a smooth-running production line as "commonplace", but those in the know have a different word for it. To them such a line represents a good application of sound "common sense!"



Packaging—is accomplished with the aid of this device which picks up the gas ranges from the delivery conveyor and tilts them to facilitate installation of the wood slat package bottom. Unit then sets piece on a roller conveyor which serves as the final packaging line. Corrugated containers are used.



"Built-ins" bearing the Caloric name are constructed from metal and parts, to final product, in the same manufacturing facilities used for the regular range, including assembly. The fabricated parts are then scheduled into the main line and final assembly of the built-in units accomplished along with the regular range assembly, according to demand requirements. In the photo above, finishing touches are being put on a built-in gas range as it nears the final assembly line.

Shipment—partial view of Caloric's shipping department showing the crating operation for the "built in" range line.



MARCH • 1956 finish



Paint spray booths; and
overhead air make-up system.

space - saving **Cincinnati** FINISHING SYSTEM

*handles both prime
and finish operations*

...at Caloric Appliance Corporation

Saving floor space is a valuable asset to Caloric as to all major manufacturers. Cincinnati engineers designed a complete finishing system with this need uppermost in their minds.

The operation begins with a 5-stage washer capable of handling Caloric's present production and yet with the capacity of doubling the output whenever it becomes necessary.

The second unit consists of a 400° gas-fired recirculating air dry-off system to dry the work completely after phosphatizing.

Third, the work passes through a huge combined air makeup and pressurized room consisting of two large spraying areas.

Either prime or finish coats may be applied while the work is carried on a 1054 foot conveyor designed to carry the work continuously through the entire operation.

The material is then elevated up through a 500° floor supported oven leaving a working area underneath with a 9 foot clearance for parts storage and assembly operations.

This unit is also a gas fired recirculating design having 300 feet of conveyor inside the oven permitting a full half hour of baking time at 500°.

A complete, properly designed finishing system can give *you* increased production at lower costs, more uniform results and greatly reduced handling costs . . . save you space at the same time. Consult Cincinnati . . . for a complete finishing system or any part, engineered-fabricated—installed . . . to your complete satisfaction.

OPERATIONS

- 1 Cleaning & Phosphatizing
- 2 Pre-Paint Drying Oven
- 3 Air Makeup and Paint Spray Booth
- 4 Paint Bake Oven
- 5 Completely Conveyorized



Prime coat spray application.



Parts emerge from
dry-off, prior to painting.

Cincinnati

CLEANING & FINISHING MACHINERY CO., INC.

2004 HAGEMAN ST. SHARONVILLE, OHIO

For comprehensive catalog . . . "COMPLETE FINISHING SYSTEMS" . . . write today!



SHE doesn't need to "PUZZLE OUT" a

LUX

FULLY AUTOMATIC RANGE TIMER

MINUTE MINDER
Bell Chime Reminder
for Top Burner Cooking



SIMPLIFIED 2-STEP AUTOMATIC SETTING

Big sales impact the new LUX Range Timer will add to your ranges is *simplicity*. There's no need for a housewife to "puzzle out" diagrams, struggle with instruction manuals, call in service men. She just sets bottom "time-to-start" knob and righthand "hours-to-cook" knob. Oven starts and stops automatically.

Write, wire or phone for full specifications and a LUX Timer to test in your own lab.



1 Time-to-start



2 Hours-to-cook

Plus

Exclusive one knob
"cook-now" timing.

Separate Minute Minder
Top-Side Control

New Synchronous Motor Requiring
No Lubrication.

Snap-in Mount that Eliminates
Studs and Rings.

Smart 3-Dimensional Styling

DEPARTMENT F
THE LUX CLOCK MFG. CO., INC.
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HOMMEL MATERIALS MAKE

Masterpieces

Sales representatives throughout the world

THE O. HOMMEL CO. PITTSBURGH 38, PA.

POTTERY • STEEL AND CAST IRON FRIT
CERAMIC COLORS • CHEMICALS • SUPPLIES

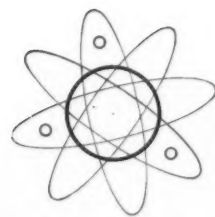
Our Technical Staff and Salesmen are available to assist
without obligation. Let us help with your problem.

World's Most Complete Ceramic Supplier

West Coast Warehouse, Laboratory and Office, 4747 E. 49th Street, Los Angeles, California

Again, It's Hommel

With a porcelain enamel finish, you give your masterpieces every sales advantage, combining the best characteristics demanded for production performance and customer acceptance. Caloric, and others who know, respect the results Hommel Frits give in the shop. Investigate and you, too, will discover that Hommel Frits provide the top quality required for your finest products.



when the time comes...



for new and better glass products — whether it be today or 2000 A.D. — Marsco's craftsmen engineering team will develop them.

The Junior Spaceman above has the best in interplanetary protection — a glass space helmet — because glass can be bowed to fit any desired shape and yet it can be tempered to impart extreme resistance to impact.

You or your family don't need space helmets today but chances are glass could improve the utility and beauty of your product and make it more salable today.

Let Marsco's craftsmen engineering team impart to your product all the advantages of glass.

ask for the man from



Here are some of the applications for Marsco heat-treated, tempered and hardened glass parts:

- CLOCK & TIMER CRYSTALS
- OVEN DOORS
- RADAR EQUIPMENT
- AIRCRAFT ACCESSORIES
- PHOTOGRAPHIC EQUIPMENT
- LIGHT LENSES
- DIALS & NAME PLATES
- TELEVISION EQUIPMENT
- INSTRUMENTS
- MEDICAL EQUIPMENT

Special shapes for: Instruments, Gauges, Household and Industrial Appliances.

MARSCO MFG. CO., 2909 S. HALSTED ST., CHICAGO 8, ILL.

Here's why *Caloric* uses International shipping containers

**Easy to handle...
Provides safe transit!**



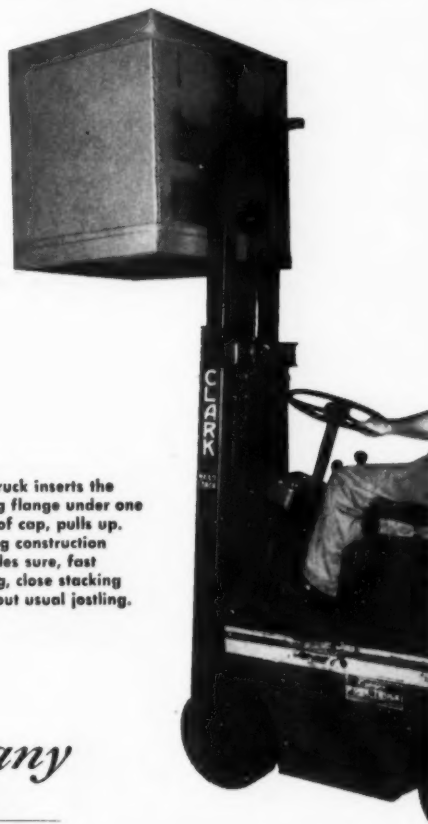
- Carton is designed for fast, easy assembly—cuts shipping room time.
- Special tube and cap design enables lift truck to handle easily.
- Interlocking flange cap provides grip for manual handling, necessary for large containers.
- Container can be opened without damage to contents, reclosed for further shipment.
- Dustproof construction assures factory-fresh arrival.
- Large, clean surfaces allow product identification and advertising.

If you have a problem in container design, write us for full details of our custom design service.

Cutaway container with top lifted. The all-corrugated packaging assures safe transit.



Lift truck inserts the lifting flange under one side of cap, pulls up. Strong construction enables sure, fast lifting, close stacking without usual jostling.



International Paper company
CONTAINER DIVISION

220 East 42nd Street, New York 17, N. Y.



Ribbon Cutters—marking Kelvinator's return to Chicago's Merchandise Mart, C. T. Lawson, center, executive v.p. of the Appliance Division of American Motors Corp., cuts the ribbon at the Winter Furniture Mart as top Kelvinator executives look on. They are (l to r) S. S. Greenbaum, appliance mgr., and Craig Jeffrey, merchandise mgr., May Co.—Baltimore; B. A. Chapman, Kelvinator v.p. and general mgr.; Lawson; Walter Jeffrey, v.p. sales; and J. H. Millstone appliance dept. mgr., Fair Store—Chicago.

finish foto-news

on the theory that one photo equals one thousand words, this new finish feature will bring you many photos and few words about people and products in the field



↑ **Twenty Million**—Frigidaire called for ceremonies at the General Motors Frigidaire division at Moraine City. The unit, a gold food-freezer-refrigerator combination, came off the line Jan. 24 and was shipped immediately to Miami, Fla., to join the General Motors Motorama there. Mason M. Roberts, General Motors v.p. and head of Frigidaire, termed the manufacture of the unit "a production achievement unparalleled in the industry."

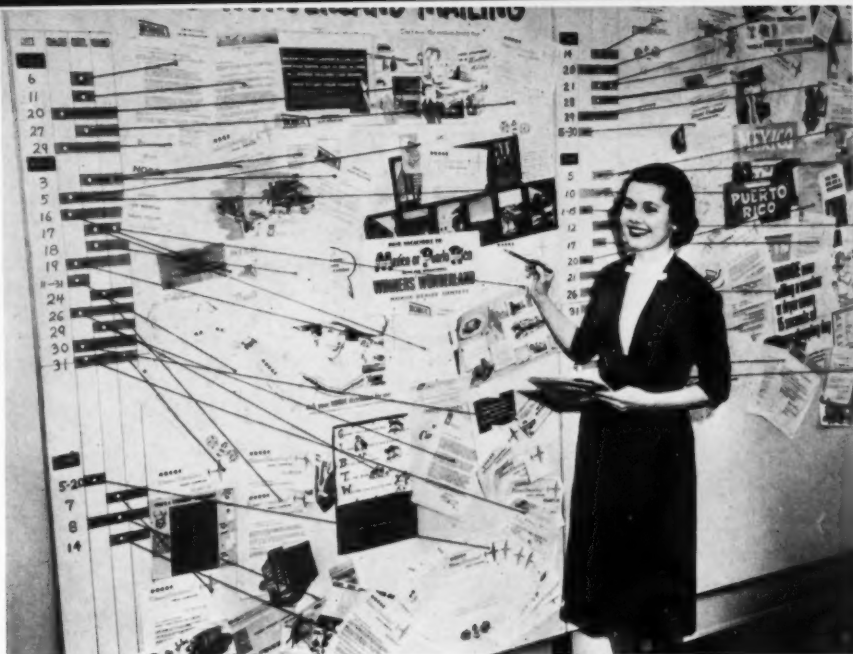
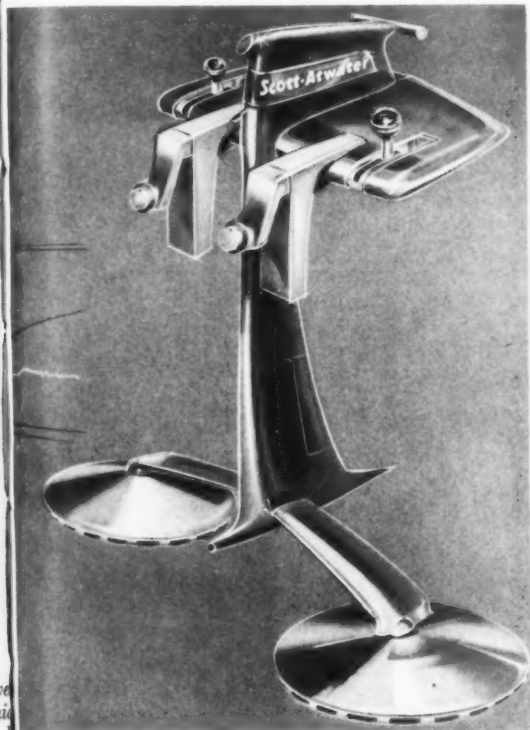


SKCMA Symbol—now approved for the group as official insignia. Designed under direction of E. I. Bang, vice chairman of the association's sales promotion-advertising committee. It was approved in October.

Chuck Wagon Deluxe—That's the design of the George Henry Co. and its new covered wagon outdoor cooking unit. Included in the equipment is bun warmer, motorized spit, etc., plus an electric charcoal igniter.



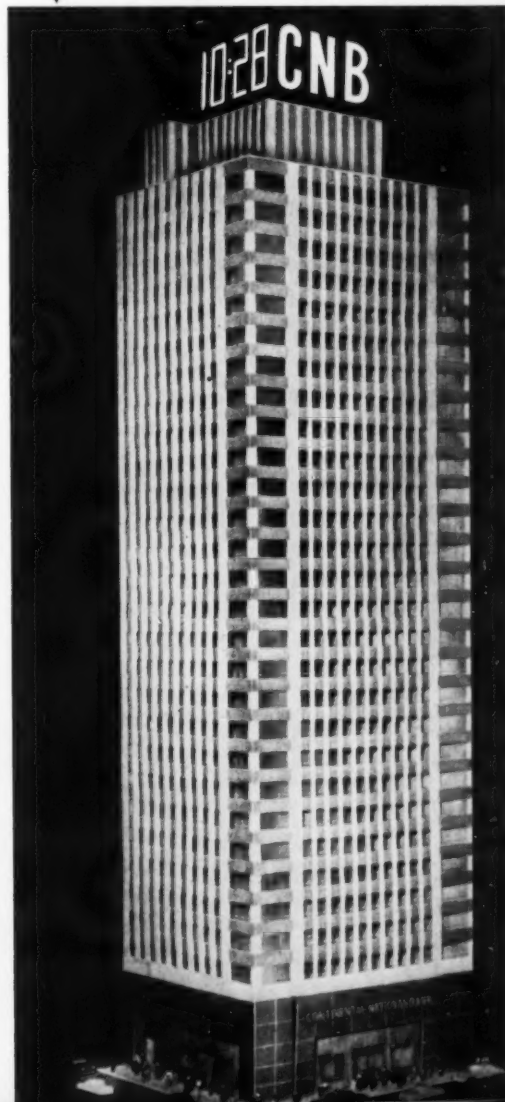
Dream Styling—could well be the title of this sketch showing underwater discs, shaped like flying saucers, as power sources for outdoor motor of the future. Idea is that counter-rotating discs would drive boat forward or backward. By throttling back on one disc, the operator would be able to change his course.

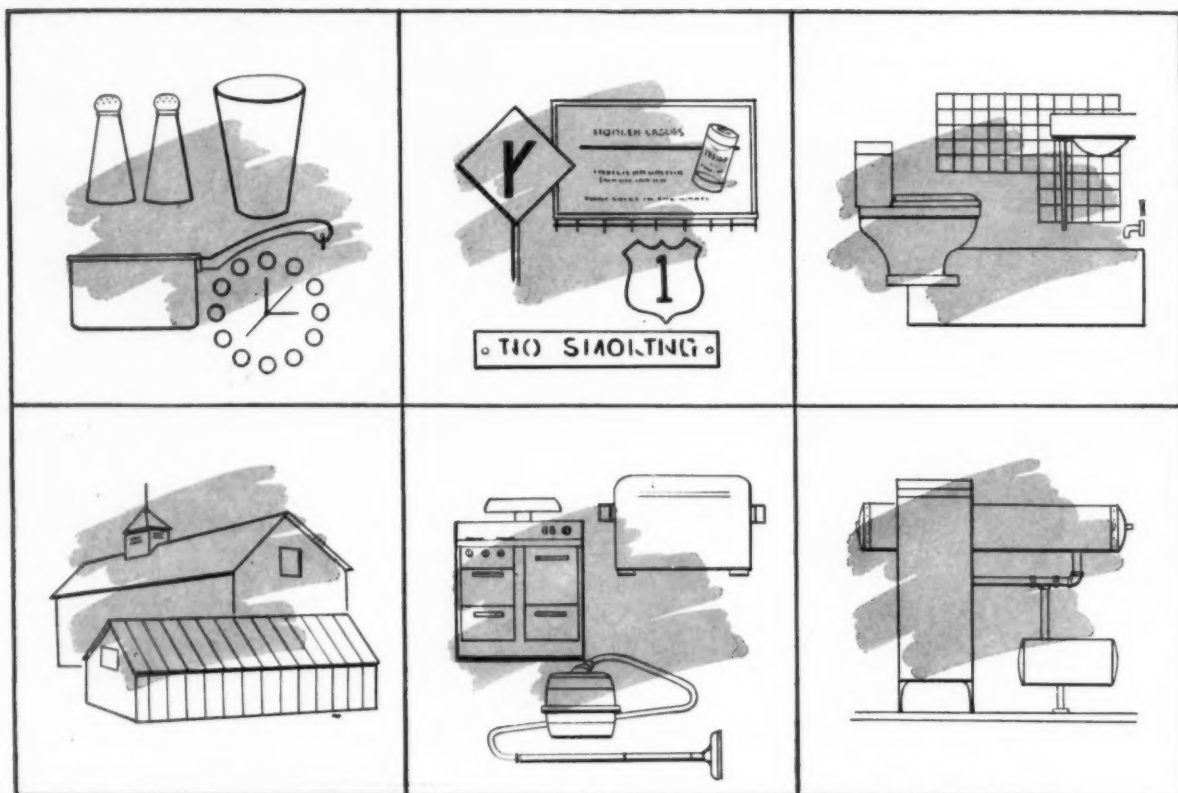


New Horizons—in the Norge Winners' Wonderland dealer and distributor incentive contest came about with some 39 promotion mailing pieces, shown in picture, plus the resultant rings (640,000 times) by the postman as 1,200 Norge dealers won vacations in Mexico and Puerto Rico.

Super Sign—and super-accurate clock crowning the new 30 story Fort Worth, Tex., National Bank building. All four sides of the clock-sign will be of special blue porcelain enameled steel, harmonizing with the anodized blue aluminum exterior of the building. Building will be up in mid-summer.

Valentine Day present—3,000,000th glass lined water heater from the Permaglas Division of A. O. Smith was produced February 14, with attendant ceremonies. The smooth celebration was backed up by extensive rush-rush preparations as it was not ascertained until February 9 just when the event would take place. As a valentine day gift to mark the milestone, a Permaglas water heater was offered to parents of every Smith baby born on the day. The actual 3,000,000th unit will go to the biggest U. S. family of Smiths that can be found.





Du Pont Porcelain Enamels for Aluminum Create New Enameling Business for You

If you enamel your own products or supply other manufacturers with finished materials, Du Pont porcelain enamels for aluminum can help you increase the sales of your product or services.

Any aluminum product offers a potential use for these colorful finishes . . . every shape and application. Appliances, furniture, fixtures, signs, tile, utensils, roofing, sheet siding and store fronts are a few of the many applications of finished aluminum.

Du Pont enamels, in an unlimited range of colors, are easily applied with conventional equipment. An excellent finish-to-metal bond gives you a virtually indestructible surface.

Aluminum enameling offers new profitable volume to the fabricator who now supplies unfinished aluminum . . . to the enameler who wishes to add aluminum to the materials he now finishes or to convert his entire operation to aluminum finishing.

TECHNICAL ASSISTANCE. Du Pont manufactures porcelain enamels . . . but does no enameling. As a pioneer developer in these finishes, we can offer you much useful information. Or, if you desire, we can put you in touch with enamellers who can take care of your needs.

DU PONT PORCELAIN ENAMEL FOR ALUMINUM



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Electrochemicals Department, Wilmington 98, Delaware

- ☐ Please send me Technical Bulletin CP 4-454 and illustrated folder on Porcelain Enamel for Aluminum.
- ☐ Have your technical representative call with further details.

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● YOU PLATE METAL
 ● YOU PAINT METAL
 ● YOU WELD ALUMINUM
 ● YOU STRIP ORGANIC FINISHES

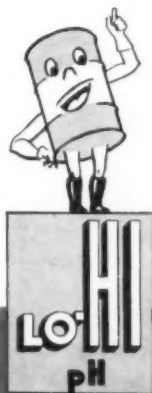
NORTHWEST'S CHEMICALS DO IT BETTER!

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COST PER FINISHED
ARTICLE IS THE TRUE
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Northwest's years of research in formulating and perfecting analytically correct, job-adjusted cleaners are your assurance of the right chemical for your job.

Northwest's Metal Cleaning Specialists have at their command such outstanding processes as LO HI pH — for cleaning prior to plating, painting or vitreous enameling; ALKALUME — for preparing aluminum for finishing and spot welding; INTERLOX — for phosphate coating; SPRA-LUBE — to control overspray of "todays" paints in water-wash paint booths; PAINT STRIPPERS — specific to your needs; SUPER-DRAW AND FLUID FILM — for drawing metals.

Northwest's production-tested chemicals and "Right the First Time" recommendations will save you money. Your Northwest Cleaning Specialist is as close as your phone.



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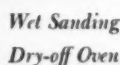
9310 ROSELAWN

DETROIT 4, MICH.

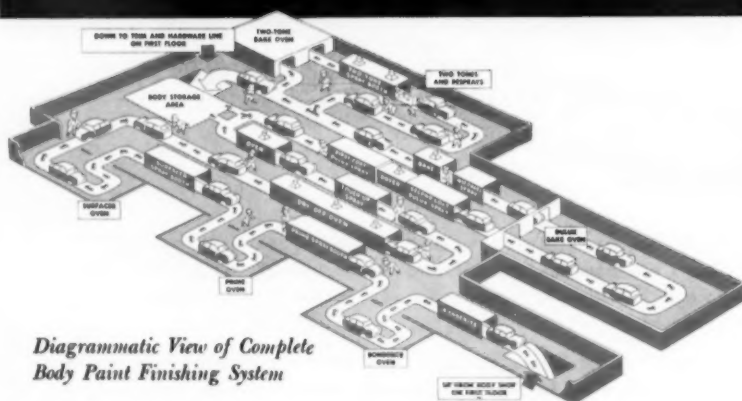
pioneers in pH cleaning control

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ROSS Complete PAINT FINISHING



Diagrammatic View of Complete Body Paint Finishing System

- **Complete Coordination Of All Components.**
- **Each Unit Balanced For Proper Performance.**

These processing advantages are assured because all major units in the finishing line are designed, built and installed by ROSS. This means that through each step—washing, bonderizing, spraying, flow-coating, drying and baking—maximum uniformity with required production speed is consistently maintained. Write for complete information.

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CARRIER-ROSS ENGINEERING COMPANY, LIMITED, LONDON, ENGLAND

PMI spring technical meeting announced

expect record turnout for spring session
upporting production, are program topics

With reservations nearing their peak for the March 14-15-16 spring technical session of the Pressed Metal Institute, it looks like a record turnout for the Cleveland meeting. The spring meeting, being held at the Hotel Carter, will focus attention on "*safety as a productivity factor*," "*practical methods for reducing costs*" and "*increasing productivity*" during the three day session.

Plant visitations will include a visit to the new Walton Hills Cleveland stamping plant of Ford Motor Co. And on the social side, PMI and PMI-Cleveland will host at the cocktail parties. "The Alpine Village" — Cleveland's little bit-of-paris, — is also listed (as an extra-curricular activity) on the advance program with the added comment that this "social event", while strictly extra-curricular, is fast becoming a must at the spring meeting.

Here is how Managing Director Harold A. Daschner has planned the meeting to load every day with potential.

Wednesday, March 14 (a.m.): Safety as a productivity factor, Topic 1: Die Blocks — cost, feasibility, adaptability and practical application. Topic 2: Material Handling — the practical kind which can be adopted by any stamper, no matter what their size, to reduce accidents caused by incorrect material handling. Topic 3: Whirling Wheel: which, as the program states, proves you can't gamble on safety altho the odds are in favor of your receiving one of the prizes. At noon George F. Sullivan, editor of *Iron Age*, will be principal speaker. Also on the program: presentation of PMI's 1955 safety awards.

Wednesday afternoon sessions will include reports from members reporting on safety programs that have worked. Following that will be a safety "Swap Shop" with visiting members breaking up into small groups to discuss a series of pertinent topics.

Plans

ess safety, cost reduction, methods for
top group to visit Ford Cleveland plant.

Rounding off Wednesday, the Cleveland district PMI group will host members at an open house in the Carter's vice presidential suite.

Thursday, March 15, (a.m.): Under the heading of reducing costs and upping productivity, the Thursday morning session will include a thought provoking presentation on what markets and opportunities will be for metal stampers now and in the years to come. Following, an internationally known authority will speak on incentives as a means to increase production and lower costs.

At Thursday's luncheon, Rev. Lawrence Hall of Cleveland will speak on "Here's Looking at You". Following that the John Woodman Higgins award presentation will be made.

Thursday afternoon: With the topic "Methods of Reducing Press Set-Up Time," men in attendance will select the group division which they have the most interest in for a general discussion, followed by a concluding round-up general session. Groups for discussion are (1) small light, (2) medium heavy, (3) large, light and heavy, (4) transfer and progressive, and (5) short runs. Then the group will go into a general round-table meeting, with an aim of developing reports on practices, procedures, and data on such subjects as gauging steel methods, application of lubricants, safety provisions for operators, die feeding, etc. The general round table will offer the opportunity for ready exchange of idea and methods, developed in the sessions. Thursday late p.m. is set for the Alpine Village visitation.

Friday morning, starting at 8:30, the visit to Ford's Cleveland stamping plant will get under way with busses leaving from Hotel Carter's front door. Back to the hotel at noon, the luncheon speak-

to Page 56 →

finish MARCH • 1956

poor paint adhesion?

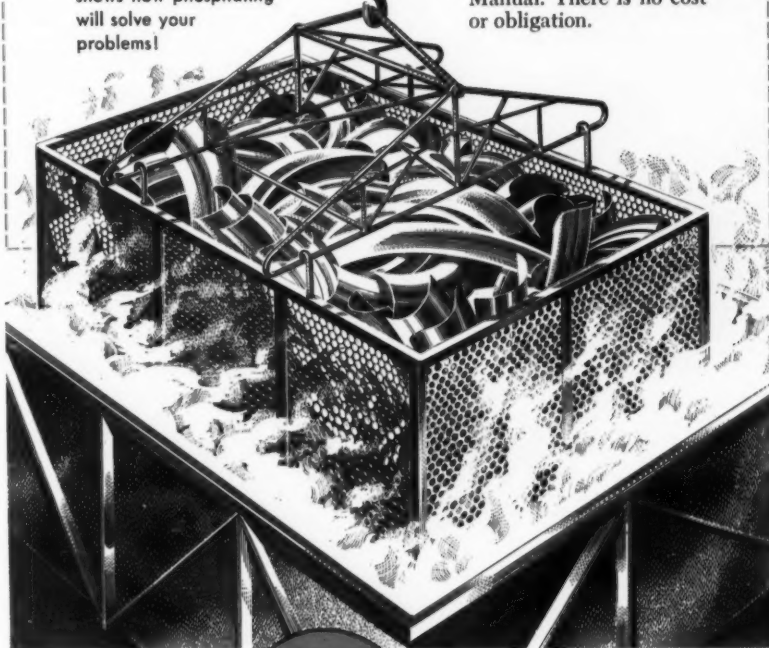


FREE MANUAL

shows how phosphating will solve your problems!

If poor paint adhesion is your problem, chances are you'll find the solution in the Turcoat Phosphating Manual. This booklet describes the complete Turcoat line, tells the full story of phosphating and includes a valuable "Phosphating Reference Chart," which quickly gives the answer to any paint adhesion problem.

If you are interested in permanent paint adhesion, write today for the Turcoat Manual. There is no cost or obligation.



Offices in all principal cities



TURCO PRODUCTS, INC.

Chemical Processing Compounds
6135 So. Central Ave., Los Angeles 1, Calif.
Factories: Newark, Chicago, Houston, Los Angeles



You will be assured of a permanent paint seal, simply by using Turcoat as a bond for organic finishing.

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Please send me a copy of the Turcoat Manual without cost or obligation.

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Title _____ F

PMI SPRING CONTINUED

er will be Dr. Tennyson Guyer, Ohio's Ambassador of Goodwill, speaking on "Your Rich Relations."

In the afternoon, Topics to be discussed are "What is Drawing Compounds and Why", "A Practical Cost Reduction Program for Metal Stampers", "Various Types of Barrel Finishes for Stamped Parts," and "Shipping Stampings."

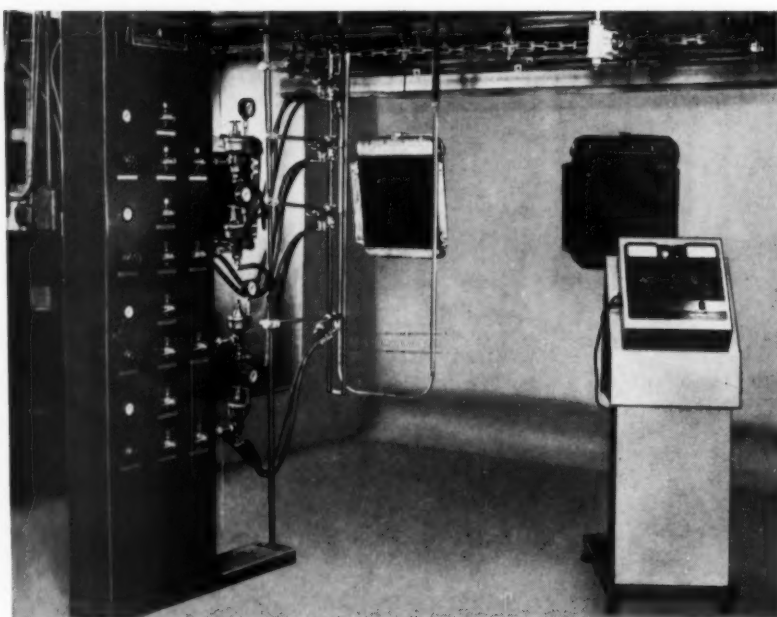
Wind-up of the meeting will be a report on the Pressed Metal Institute's

place in the manufacture and distribution of metal stampings, with the PMI cocktail party beginning immediately after. The 1956 spring session is the 6th to be held.

STOVE WORKS CELEBRATES ITS FIRST ONE HUNDRED YEARS

The Stove Works, Inc. of Middletown, Penn., oldest industry in that borough and one of the state's oldest stove plants, is celebrating its one-hundredth birthday this year. Still func-

tioning at the original location, its major products today are modern gas stoves, whereas when the company was established in 1856 by Seymour Raymond and Alex Campbell, an iron moulder and boiler maker, respectively, the chief products were coal stoves with an occasional casting of bells, structural columns and beams, tossed in. The company is now headed by I. A. Prouser, president. George L. Dailey, Jr. superintendent of the enameling plant, has been employed at the plant for 52 years, with his father an employee before him.



Ashdee Automatic Electrostatic Finishing Systems Will Cut Your Painting Costs

More and more manufacturers with metal part finishing operations are turning to the advantages of Ashdee electrostatic finishing. With the Ashdee System, paint particles are attracted to the product by a high voltage electrostatic field that drastically reduces paint waste, eliminates manual spraying, gives faster production speeds and higher quality.

FREE ENGINEERING SERVICE

Ashdee engineers will test-run your products and show you estimates of savings without obligation. If necessary Ashdee will provide complete laboratory facilities at no cost to you.

GET THE FACTS

You can own or lease an Ashdee System. Start now to reduce your finishing costs. Write for the new Ashdee case history file that gives you positive evidence that Ashdee's Electrostatic Finishing System is a wise investment.

Sales and Service Representatives In Most Major Cities

Ashdee Electrostatic Products, Inc.

Dixie Highway, Homewood, Ill.

626 EXHIBITORS DISPLAY '56 LINES AT CHICAGO

HOUSEWARES EXHIBITION

The atmosphere of optimism and progress generally apparent at recent meetings such as the International Home Furnishings Market carried over through the Housewares Exhibit. The Housewares Exhibit was held at Navy Pier, Chicago, from January 19 through 26. With some 626 exhibitors showing their '56 lines.

For a brief idea of how most of the exhibitors felt about the Show, here are a few quotations picked up by our editor. William Fraser, Vollrath: "Very good Show. Buyers showed great confidence in '56 in that the buyers were actually buying." D. W. Moran, Toastmaster Division, McGraw Electric: "Yes, we feel it's been a fine Show. We've had a large number of people at our exhibit and our products have been well received."

200 NEW JERSEY CERAMISTS HEAR REPORT ON SAFE TRANSIT

A suggestion that the Ceramic Assn. of New Jersey start a project, appoint a member as liaison, and have the ceramists group kept abreast by developments in the National Safe Transit Program, was presented to some 200 hundred members of the Assn. at its New Brunswick meeting in December. The suggestion was made by R. F. Bisbee, general chairman of the NST committee, in a speech given before the group. Some 200 attended the meet and were shown NST's 17 minute movie. All those attending were also presented with the comprehensive folder containing pertinent information on the National Safe Transit program.

DON'T UNDERESTIMATE
the **Sales Power**
of AN UNIQUE IDEA



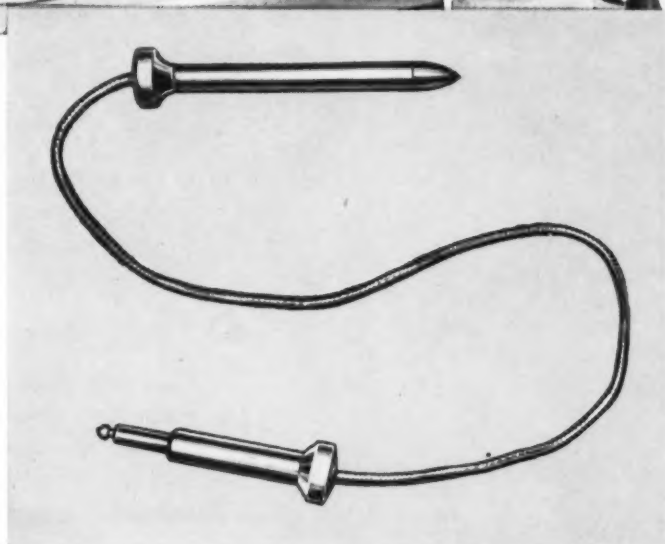
When the K-S Meat Thermometer was introduced last year on a much publicized range by a leading manufacturer, its sales potential was instantly recognized.

It naturally intrigued the prospective range buyer. Here, for the first time, was an infallible means of roasting meat or fowl exactly to a turn—from a juicy red to a crusty brown or any point in between. And without ever looking into the oven.

The old stoop, squint and guess routine has been outmoded. A dial on the range control panel tells the housewife exactly when her meat course is ready—a dial she can see clearly and conveniently. She just can't miss.

Three more well known range builders are incorporating the K-S Meat Thermometer in their 1956 models to meet the growing market demand.

Why not consider it for yours?



**KING-SEELEY
CORPORATION
ANN ARBOR, MICHIGAN**

7434

Our Proving Grounds *are the added PLUS* *that enables us to make good* *on our claim of BETTER FRITS!*

IN our laboratories top flight Ceramic Engineers carry on continuous exhaustive research and tests which have resulted, thru the years, in notable advancements and improvements of Frits.

perfect conditions prevail in laboratories

It has to be recognized that the almost perfect conditions prevailing in a laboratory test cannot be achieved under practical working conditions.

that's why our Proving Grounds pay off

Here at Ing-Rich our ceramic engineers have the tremendous advantage of day in and day out contact with our large enameling plant . . . where we both enamel our own products and do a large job enameling business.

That's why Ing-Rich Frits will give you higher uniformity, lower rejects. Our ceramic engineers can and do follow the results obtained in the laboratory right down our production lines . . . not occasionally, but day in and day out.

Ing-Rich FRITS are "Plant Tested." The result of that highly desirable and rare combination of science and practical experience.



INGRAM-RICHARDSON, INC.

OFFICES, LABORATORY AND PLANT • FRANKFORT, INDIANA

LIGHT METAL CONTINUED

→ from Page 31

die cast housing construction, which allowed for the cut-outs for the viewfinder and the turret, with smooth, contoured shapes in the rest of the instrument.

Bosses and other cast-in projections are incorporated in the design for attaching various mechanical components to the housing. In assembling the camera, the lens, film and operating mechanisms are all mechanically fastened to the housing components. A lens mounting plate is attached to the outside of the front (turret) casting, while an aperture plate is fastened behind.

Through four tapped holes in the casting this whole assembly is attached to the main body. The camera mechanism is screwed to the main casting's three bosses. To complete the camera assembly the side panel has a thin groove cast around its perimeter which mates with the contour milled edge of the body. By mating the edges in a groove DeJur achieved a tight fit while providing the necessary light trap.

All three pieces of the housing are produced simultaneously in the same die to assure perfect mating of the three parts.

STORAGE CONTINUED

→ from Page 32

Potassium carbonate has been found to be a highly effective chemical for humidity control since its humidity range centers at about 43%, it is low in cost, and it can be handled easily with normal caution. One tray of potassium carbonate properly maintained in a saturated solution will control between 40 and 50 cubic feet of air. "Proper maintenance" includes retaining the saturation in high humidities and adding water at low humidities.

Other relatively harmless chemicals and the humidities which can be expected from each are calcium chloride, 32%, and sodium dichromate, 52%.

Where coated abrasive consumption is such that a walk-in storage unit is desirable, the recommendations of an air conditioning specialist is indicated.

For checking humidity readings a direct-reading humidity instrument is acceptable; however, a stationary wet and dry bulb humidity gauge is the

most effective instrument. Wet and dry bulb readings are simply converted to relative humidity. In the large room relative humidity is most accurately measured with a sling psychrometer.

HEATING ASSN. PRESIDENT

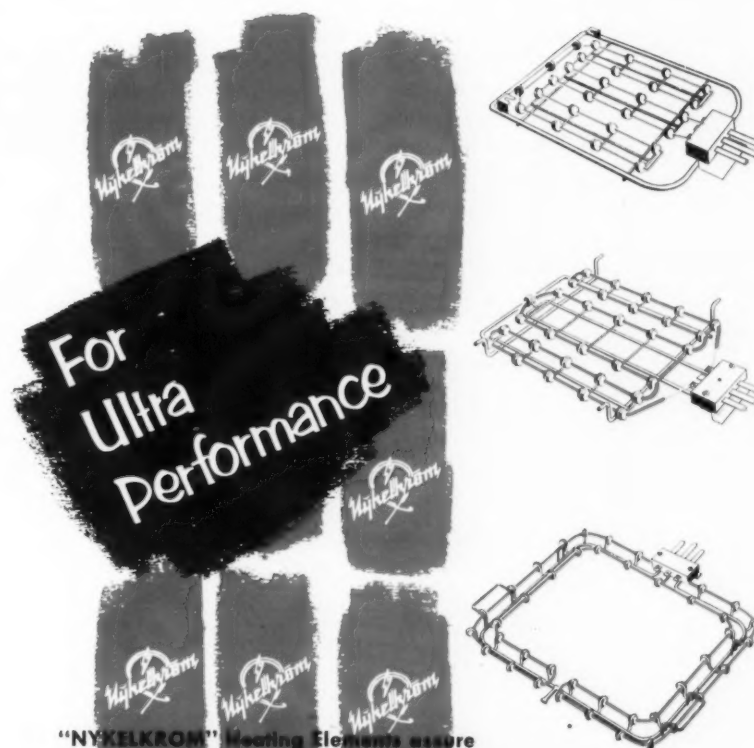
It is reported that Elton E. Staples, executive vice president, Hevi Duty Electric Co., Milwaukee, has been elected president of the Industrial Heating Equipment Association.

KOEGLER TO NAT'L. LEAD BOARD

Frank J. Koegler, vice president and general manager of the Doehler-Jarvis Div., has been elected to the board of directors of National Lead Co., New York City.

HARIG MFG. SALES APPT.

Harig Mfg. Corp., manufacturers of machine tools, has announced the appointment of J. P. Schmidt to the position of assistant manager of sales.



"NYKELKROM" Heating Elements assure dependability in electric cookery. Superior results

in baking and broiling are obtained through the scientific

heat distribution supplied by Tuttle's

exclusive "SADDLE-LOOP" construction.

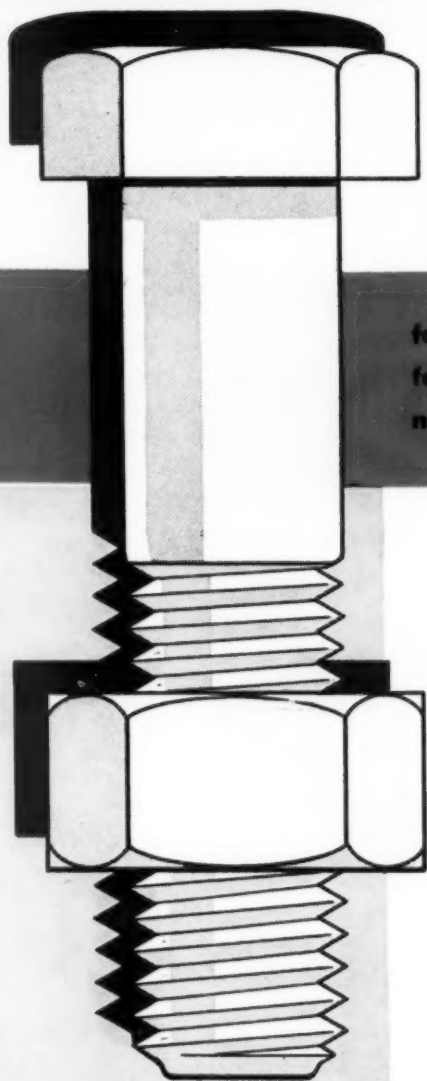
Designed and manufactured

with your application in mind.

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*Tuttle
of Adrian*



look to **UNIVERSAL—**
the Appliance Industry does

for the manufacture of precision quality fasteners. All types and materials of screws, nuts, bolts, etc.



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SCREW CO.**

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Universal offers a single, dependable source for all types of fasteners. Yes, a complete inventory of all types of fasteners as well as facilities to quickly manufacture items made to order. Let us show you that we can furnish **QUALITY MATERIAL** and the **FINEST SERVICE** available at **COMPETITIVE PRICES.**

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204 Broadway
Broadway 2-1650

NEW NICKEL PLATING SYSTEM CUTS TIME IN HALF

A new development in which speed brick nickel plating that is reported to show disposition rates 100% higher than the fastest processes heretofore available, has been announced. The process, called levelume, is said to be the first bright nickel process to combine the qualities of "full" brightness, with high leveling and exceptional speed. Practically any existing nickel plating process can be converted to the method in a matter of a few days. No special auxiliary equipment need be installed. Tanks only have to be cleaned and bleached, with any rubber-lined tank previously used with bright nickel solution suitable for the process.

Key to the success of the new speed-up system are some newly developed additives, which make it possible to use an activated carbon pack in the filter for the plating solution. This continuously removes harmful organic contaminants, eliminating need for periodic batch purification. Hanson-Van Winkle-Munning Co. officials, who developed the process, assert the process gives recessed areas uniform brightness without shading and is effective within a wide current density range from 20 to 150asf. High leveling characteristics of the deposit, the company asserts, fill in scratches to a degree where, in many cases, polishing and buffing is eliminated. How good is it? Levelume officials report one plant reduced chromium plating rejects by 21%; and one leading auto manufacturer has doubled his production without adding new facilities. Result: a saving of over \$1,000,000.

HOTPOINT ANNOUNCES PRODUCTION OF TV SETS

Hotpoint Co. of Chicago will introduce a full line of black and white television sets on the market in July, 1956. The completely new line, balanced to meet consumer demand for maximum performance and new styling in all models, will have screen sizes ranging from 14 to 24 inches. Initially, the new Hotpoint line will be produced in one of the world's largest electronic plants by the General Electric Co.



NOW CAN MAKE PRECISION BASE PARTS ON PRODUCTION BASIS

Special manufacturing facilities that now allow commercial production on precision structural mounting elements or base plates for small precision mechanism have been developed by the Allied Products Division of Hamilton Watch Co. The method of die punching per-

mits production of many holes (as exemplified in above photo) at same time. Holes in plates are die punched, when thickness permits, or drilled on automatic drilling machines. The machines may be cammed to drill, in one cycle, up to 50 holes of eight different sizes. Special machines of the same type are capable of drilling 56 holes of 10 different sizes.

The base plates produced by the new methods are widely used in ordnance timing mechanisms and may find desirable application in the manufacture of any small, compact, precision mechanism in which a number of rotating or mechanically interacting parts have to be mounted so as to function almost entirely without friction and virtually without backlash or lost motion. Such plates are especially applicable for miniaturization of electrical and control devices, the company asserts.





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FORMULA**

**for refrigerators
with sales appeal***

Guardsman[®]

CHEMGARD PRIMER

A highly moisture resistant primer for application by spray. Formulated for exceptional toughness and adhesion. Good enamel hold out develops the full potential of the enamel coat and provides a perfect base for the sort of high gloss finish demanded in the refrigerator industry.

PERMAGLO ENAMEL

A high gloss enamel with excellent hiding and resistance to moisture and food stains. Available in white and colors, and offering outstanding color retention. Bakes to a hard, porcelain-like finish.

*An ideal combination of resistance, color retention
and beauty for refrigerators and other applications
where finest quality enhances sales appeal.*

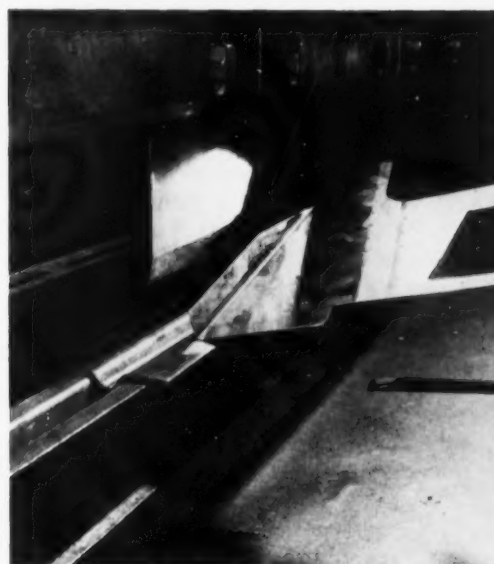
GRAND RAPIDS VARNISH CORPORATION

GRAND RAPIDS, MICHIGAN

Makers of the Famous Guardsman[®] Finish and Guardsman[®] Cleaning Polish

*** THE BETTER THE FINISH, THE BETTER THE BUY**

finish **SUGGESTION BOX**



Scrap steel inserts for power brake dies save time and money

method eliminates much hand-forming for Dallas, Texas company. result: dollar-a-part savings.

Temco Aircraft Corp. in Dallas, Tex., is using an inexpensive insert on its power brake dies which is said to provide an average saving of more than \$1 on every part produced. Savings result from the insert's elimination of much hand-forming that normally followed forming on the power brake machines. Rejections, too, are reduced by the insert.

The insert is made of 1/16 or 1/8-inch scrap steel and designed for use when parts with large holes, cut-outs

or scarfs are being formed. Normally, power brake pressure will cause a part to "flare", if a hole, cut-out or scarf is located where the bend is made. "Flare" is an increase in the radius of a bend. It occurs in cut-out or scarfed parts because these areas receive less support from bottom dies and, therefore, are less sensitive to top or radius die pressure. To make bends uniform, flared areas formerly were hammered back to correct radius with mallets.

Then Carlton M. Smith, a Temco

leadman, developed the insert. It lies across the jaws of the bottom die. It is bent to the same radius as the outside of the part that is being formed. The part lies on top of, and is supported by the insert. This support, around cut-out and scarfed edges, equalizes top die pressure along the entire part and allows a uniform bend.

Power brake operators at Temco use inserts with nine different radii every day. Though they so far have used inserts only on 48-inch machines forming parts from 2 to 36 inches in length, Smith points out the insert may be used on any size brake machine.

Develop abrasive jet method for evaluating organic coatings

simple method developed by NBS team found to distinguish significantly
between materials too difficult to differentiate by qualitative means

A SIMPLE, rapid method for measuring the abrasion resistance of organic coatings on metals has been developed by A. G. Roberts, W. A. Crouse, and R. S. Pizer of the National Bureau of Standards. Essentially, the method determines, under controlled operating conditions, the time required for a high-speed jet of fine abrasive particles to abrade through the coating to the substrate.

Development was sponsored by the Navy Bureau of Aeronautics in connection with a program for the production of highly durable, scuff-resistant finishes for naval aircraft. Because the instrument readily simulates a variety of service conditions, the NBS procedure can be used to determine abrasion resistance on all types of protective coatings, regardless of gloss, color, thickness, or surface area.

Abrasion resistance is often one of the most important factors in the service performance of protective coatings. Until recently thoroughly reliable methods for determination of this property have been lacking. Several abrasion test procedures are available in which loose particles fall, rub, or are blown against the test specimen.

Although the NBS abrasive jet method is similar in principle to these methods, it permits greater ease and rapidity in evaluating materials and better reproducibility because it does not depend upon abrading an area of definite size and uses a continuously fresh supply of abrasive particles under closely controlled conditions. The end point in this method is the first show of bare metal and is readily detected when coating and substrate differ in color, as is usually the case; otherwise, inspection with a hand lens can be used.

In the abrasive jet method, carbon dioxide gas under controlled pressure propels an abrasive powder from a vibrating storage chamber through a nozzle to impinge at high speed upon the



Abrasive jet equipment developed at the National Bureau of Standards for

measuring the abrasion resistance of an organic coating on metal.

test specimen. A solenoid valve operated with a manual switch turns the flow of the abrasive powder on or off. The mounting arrangement for the test specimen and nozzle assembly permits rotational, back and forth, or up and down adjustment, while the angle between the nozzle tip and surface to be abraded is adjusted by a graduated rotating disk attached to the nozzle shaft.

A specially calibrated taper gage permits rapid and accurate adjustment of the nozzle-to-specimen distance at abrading angles from 20° to 90°. The specimen holder and the nozzle assembly with its adjusting parts are housed in a rectangular brass chamber with a transparent plastic front door and top.

The spent abrasive particles and coating debris are removed through a vacuum exhaust outlet at one end of the test chamber. Rapid monitoring of the abrasive flow rate is accomplished by a weighing tube that has a rubber diaphragm with a hole to accommodate the nozzle tip at one end and a dia-

phragm of ordinary filter paper at the other end to permit escape of gas while trapping the abrasive particles.

Although operating conditions can be varied to accommodate extreme differences in materials, it is usually desirable to use a nozzle-coating distance of 0.04 in., a gas pressure of 40 lb/in², a flow rate of approximately 0.15 g. per second, and abrading angles of 90° or 45°. The 90° angle simulates the leading-edge type of erosion encountered by aircraft in flight, while the 45° angle simulates scuffing wear which aircraft receive during maintenance operations when they are walked on, struck, or scraped by hose nozzles.

The abrasion time for a given material depends on the test conditions: it increases almost linearly with increasing nozzle-to-coating distance, decreases with increasing pressure, and decreases with decreasing angle of abrasion from 90° down to about 30°. At smaller abrading angles, the abrasion time rises again.

Editor's mail → from Page 6

in January represents a tremendous amount of work for our editorial staff. The result would be literally impossible without complete cooperation such as we received throughout the Rheem organization. Your comments representing Rheem management combined with many from other readers in companies throughout the country make our editors feel that their efforts are both worth while and appreciated. Eds.

Gentlemen:

I had a chance to go over your special Rheem section that you produced in January and I would like to offer my congratulations on a very outstanding job.

It is such a good story about Rheem's growth and production facilities that I would like to have about ten copies of it to distribute to our Creative Department . . .

D. A. Wright
Campbell-Ewald Company
Detroit, Michigan

Gentlemen:

Please forward to us two copies of your January 1956 issue of *finish*. . . .

A. J. Cohen, Manager
Standard Can Corporation
Pittsburgh, Pennsylvania

Gentlemen:

In the January issue of *finish* you ran a story on the ARI Convention in Atlantic City.

Our vice president, James Emmett, Jr., is president of the ARI and, inasmuch as we are quite interested in this story, we would appreciate it if you would send us two additional copies of this magazine. . . .

Ferdinand Pauls, Assistant Advertising Mgr.
Marsh Instrument Company
Skokie, Illinois

Gentlemen:

Will you kindly air mail to me three copies of the January issue. . . .

Charles D. Spangler, Director of Public Relations
Norris-Thermador Corporation
Los Angeles, California

Gentlemen:

We would like to have another copy of your publication *finish* January, 1956, issue.

F. A. Smith, Vice President
Houdaille Industries, Inc.
Huntington, West Virginia

would like to receive *finish*

Gentlemen:

I have just recently acquired the position of Quality Control Supervisor. I have talked to our Finishing Supervisor, and he stated that he has gotten some good ideas from your magazine.

I would appreciate if you would add my name to your permanent mailing list.

Norman Knisely, Quality Control Supervisor
The Miller Company
Utica, New York

articles helpful in work

Gentlemen:

I enjoy your fine magazine very much . . . would like to have my paint foreman get a copy of *finish* each month. I feel that the fine articles would help him in his work as it has me in the past and even now.

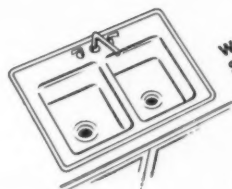
G. K. Clapper, Supt. of Paint & Packing Dept.
Alabama Metal Products Company, Inc.
Rosedale, Mississippi

to Page 72 →

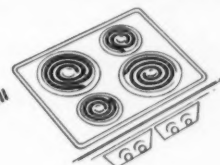
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Watertight
Sanitary
Easy to Install



Made by specialists in the
designing and manufacture
of clamp-down frames

YOU CAN
DEPEND
ON THESE
FEATURES

Vance has pioneered in the manufacture of stainless steel clamp-down frames and has already produced more than a million!

When you use VanSeal Frames on your built-in sinks and ranges, you can be sure of a frame that will fit perfectly! Installations can be made with confidence.

VanSeal Frames assure easy, sanitary, self-aligning installation and added beauty for your countertop and built-in range units. Benefit from Vance Industries' long experience in making frames for all types of built-in units.

...Specify VanSeal and be sure!

PERFECT BENDS—
EVERY TIME

Each corner radius is exact, assuring a tailor-made fit.

LEGS ARE ALWAYS
VERTICAL—STRAIGHT

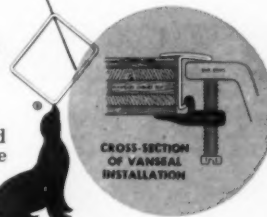
The vertical leg of every VanSeal Frame is at a perfect 90° angle to the top flange to assure a tightly-sealed installation.

EXACT UNIFORMITY

VanSeal Frames of the same size are consistently alike in their measurements.

INVISIBLE WELDS

Welded so perfectly—finished so smoothly—you can't locate the weld on the top surface.



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OF VANSEAL
INSTALLATION

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Market facts Bulletin NO. 3

FERRO CORPORATION • CLEVELAND 5, OHIO

Dealer surveys show Porcelain Enamel preferred finish for CLOTHES WASHERS...by 2½ to 1 margin!

Independent surveys among 6,000 representative appliance dealers show Porcelain enamel the overwhelming favorite—for both the *inside* and *outside* of clothes washers. For instance:

Question: "Which of these types of finish do you consider best for the *outside* of Clothes Washers?"

Answers: **64.8%** voted for Porcelain enamel, 28.3% for the second-choice finish, with 3.7% expressing no opinion.

For washer *interiors*, Porcelain enamel is a 6 to 1 favorite:

Question: "Which of these types of finish do you consider best for the *inside* of Clothes Washers?"

Answers: **77.3%** voted for Porcelain enamel, 13.5% for the second-choice material, with 3.4% expressing no opinion.

HOW DEALERS VOTED ON PRINCIPAL ADVANTAGES OF MATERIALS AND FINISHES

	Material "A"	Material "B"	Finish "C"	Finish "D"	Porcelain Enamel
Total Respondents—1,663					
Appearance from Sales Viewpoint	83	348	130	436	1,096
Sanitation and Ease of Cleaning	81	487	101	241	1,295
Resistance to Wear	136	737	71	112	973
Resistance to Rust and Corrosion	384	763	79	108	972
Resistance to Soaps and Alkalies	77	549	60	83	1,182
Resistance to Heat	159	572	59	98	907
Permanence of Finish	151	800	62	141	1,091
Total Number of Mentions	1,071	4,156	562	1,219	7,516
Number of Respondents Responsible for Mentions	507	1,040	245	570	1,489



CROSLEY-BENDIX APPOINTS MACDONOUGH VICE PRESIDENT

William A. MacDonough, director of advertising and sales promotion, has been appointed vice president of Crosley and Bendix Home Appliances Div., of Avco Mfg. Corp., according to President Chester G. Gifford.

STOCKHOLDERS APPROVE MULLINS- AMERICAN-STANDARD MERGER

Mullins Mfg. Corp. became the Youngstown Kitchens Div. of American Radiator and Standard Sanitary Corp. late in January, after stockholders voted approval.

There will be no change in the products or distribution methods of the new division.

George E. Whitlock, former chairman of Mullin's board, has been elected a director of American-Standard and president of the Youngstown Kitchens.

HERMAN IS CALORIC ENAMEL PLANT SUPERINTENDENT

News comes to *finish* of the promotion of Charles O. Herman to the position of enamel plant superintendent at Caloric Appliance Corp., Topton, Pa. Herman has been with the company for 28 years.

SUNBEAM BUYS CONLON- MOORE CICERO, ILL., PLANT

The property of Conlon-Moore Corp., Cicero, Ill., Chicago Suburb, has been sold to the Sunbeam Corp., Chicago, according to Bernard J. Hank, Conlon-Moore president. It includes a manufacturing plant of more than 100,000 square feet.

Conlon's appliance manufacturing was moved recently into its Moore plant in Joliet, Ill.

MAGNAVOX TO BUILD PLANT IN TENNESSEE

Frank Freimann, president, Magnavox Co., Fort Wayne, Ind., has announced plans to build a factory at Jefferson City, Tenn., for the production of cabinets for radio and television sets.

COPELAND REFRIGERATION NAMES MOZLEY, LESSING

O. H. Buschmann, vice president, Copeland Refrigeration Corp., Sidney, Ohio, has announced the appointments of Raymond G. Mozley as chief applications engineer and Charles A. Lessing as chief laboratory engineer.

ANN OLSON HEADS CROSLEY- BENDIX HOME ECONOMICS

Ann Louise Olson has been appointed director of home economics for Crosley and Bendix Home Appliances Divs. of Avco Mfg. Corp., Cincinnati, announced F. E. Howell, vice president and director of sales and distribution.

MAGIC CHEF NAMES HOLZMAN VICE PRESIDENT — SALES

John W. Holzman, formerly vice president and general manager, Cincinnati



Div., Ohio Appliances, Inc., has been appointed vice president in charge of sales for Magic Chef, Inc., St. Louis, announced C. M. Dunn, president.

Holzman has held the positions of vice president, director of sales and board member of RCA Victor Distributing Corp., and division manager for RCA Estate Stove Co.

NORGE NAMES PETTERSEN MERCHANDISING DIRECTOR

Appointment of Jack S. Pettersen as director of merchandising, a new position, was announced by R. C. Connell, vice president of sales, Norge Div., Borg-Warner Corp., Chicago.

NUTONE ENTERS SMALL KITCHEN APPLIANCE FIELD

It is reported that Nutone, Inc., Chicago, has entered the small kitchen appliance field with the introduction of a combination food mixer-blender-juicer and electrical knife sharpener.

LAUER SEES 12% SALES RISE IN 1956

Stewart E. Lauer, president, York Corp., York, Pa., predicts a sales increase in air conditioning and refrigeration products and systems of between 12% and 13% over 1955, for a total of about \$94,000,000.

FAUROT HEADS KELVINATOR STYLING DEPARTMENT

B. A. Chapman, vice president and general manager, Kelvinator Div., American Motors Corp., Detroit, has announced the appointment of Randall D. Faurot to the newly-created position of director of styling.

Faurot was previously manager of exterior styling for Studebaker Div., Studebaker-Packard Corp.

NEW NAME FOR VIKING AIR CONDITIONING

It is reported that Viking Air Products is the new name of Viking Air Conditioning, a division of the National U. S. Radiator Corp., Cleveland.

KAIN IS KOCH VP

Harold Kain, sales manager, has been appointed vice president in charge of sales for Koch Refrigerators, Inc., announced Millard Mayer, chairman of the board.

HORIZONS, INC. APPTS.

Dr. Eugene Wainer, vice president and director of research, Horizons, Inc., Cleveland, has announced the appointments of Dr. James L. Wyatt as head of the Dept. of Metallurgical Engineering; Bertram C. Raynes as head of the

Dept. of Chemical Engineering; and Calvin A. Schunemann as head of the analytical chemistry section under the Dept. of Chemistry.

FOXX IS QUICFREZ PRES.

It is reported that John M. Foxx was elected president, general manager and director of Quicfrez, Inc., Fond du Lac, Wis.

AMANA '55 SALES UP 49%

George C. Forestner, executive vice president, Amana Refrigeration, Inc., Amana, Iowa, announced that sales volume in 1955 was 49% higher than in 1954.

MAGIC CHEF NAMES ROLLINS

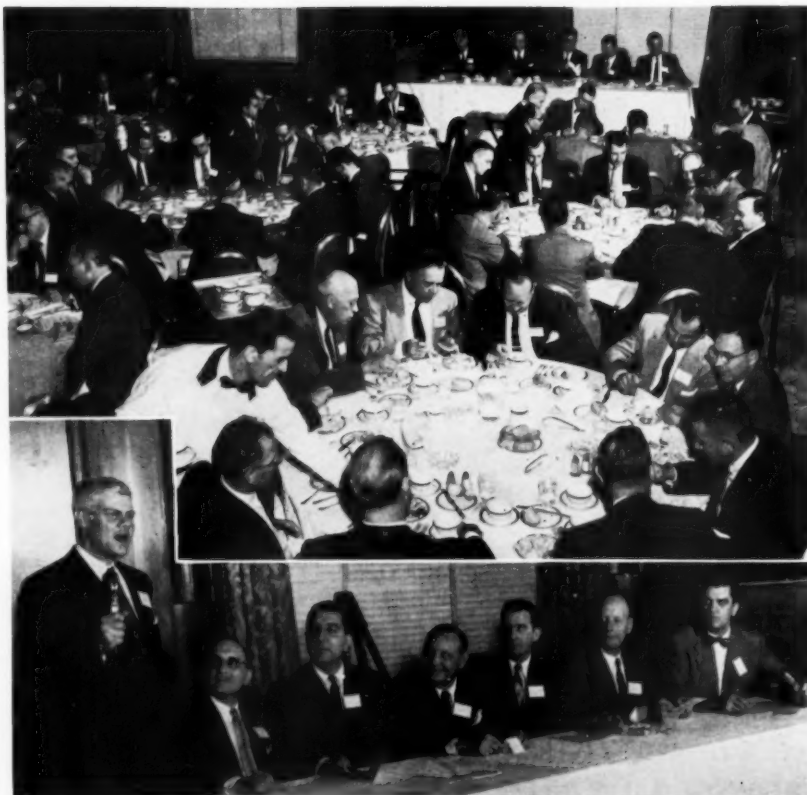
Herbert Rollins, formerly with Radio Corp. of America, Camden, N. J., has been appointed national service manager of Magic Chef, Inc., according to Cecil M. Dunn, Magic Chef president.

NEW GAMA MEMBERS

Harold Massey, managing director, announces that four companies have been elected to membership in the Gas Appliance Manufacturers Association. They are Deering Air Conditioning Co., Cincinnati, Ohio, Screw Machine Products Co., Portland, Ore., Furnasman Mfg. Co., Ltd., Winnipeg, Canada, and General Gas Appliances, Ltd., Manchester, England.

KELVINATOR AIMS FOR 10-15% SALES INCREASE

Kelvinator is aiming for sales gains of 10 to 15% over last year during 1956, Walter Jeffrey, vice president — sales, announced.



PEI's ARCHITECTURAL DIVISION WINTER MEET AT CHICAGO REVEALS GROWING DEVELOPMENT OF THE FIELD

From a study of the architect's viewpoint to methods in porcelain enamel curtain wall construction, the 2nd annual winter conference of PEI's Architectural Division covered the field with reports from every part of the nation at their February 8-9 meeting at Chicago's Sheraton Hotel. J. W. Vicary, chairman of the division, presided at the sessions. Among the speakers were Roy T. Christiansen, AIA of Chicago and grand award winner in the recent

architectural competition (see page 79) Henry S. Brinkers of the University of Illinois.

ASTE ANNUAL CONVENTION

The American Society of Tool Engineers will hold its annual convention March 19-23 in conjunction with the ASTE Tool Show in Chicago's International Amphitheatre. Co-sponsors with ASTE of important papers include Armour Research Foundation, National Tool and Die Manufacturers Association and National Fluid Power Association.

A. O. SMITH TO EXPAND HEATING AND AIR CONDITIONING LINE

A. O. Smith Corp., Milwaukee, has announced an expansion of the Permaglas Div. heating and air conditioning lines for 1956.

About 60 new model units will go into production in the next few months, and the total will reach 110 new models over the next year, according to the announcement. This will bring A. O. Smith up from 20 original models to 130 units in central home heating and air conditioning by 1957.



Pressed Metal Institute wins award — from National Safety Council for outstanding work in reducing accident frequency rate in stamping plants. David L. Arm, manager, Industrial Dept., presents the award to H. A. Daschner, PMI managing director, at a meeting in Chicago.

GAMA 1955 FIGURES

Edward R. Martin, director of marketing and statistics, Gas Appliance Manufacturers Association, has announced the following shipment figures for 1955: automatic gas water heaters, 2,750,300; gas ranges, 2,244,900; and gas central heating units, 838,300.

RHEEM AUTOMOTIVE NAMES MASON AND HAYES

Rheem Automotive Co.'s chemical processing and metallurgical depart-



IRA HAYES



DALE F. MASON

ments have been consolidated and will be headed by Dale F. Mason as technical control manager, announced O. W. Carrico, vice president of manufacturing. Carrico also announced the promotion of Ira Hayes from analytical chemist to chief chemist.

Rheem Automotive will move to a new \$6,500,000 plant at Fullerton, Calif., by mid-1956. The company manufactures automotive parts and accessories, Rheem-Silver Line farm tools and

finish MARCH • 1956

Rheem-beam highway guard rail. (See special Rheem section of January finish).

NORDSTROM IS REFLECTAL VP & GENERAL MANAGER

The election of Raymond G. Nordstrom as vice president and general manager of Reflectal Corp., subsidiary of Borg-Warner Corp., has been announced. Prior to joining Reflectal in 1954, he was assistant to the president

of Ingersoll Products Div., Borg-Warner Corp.

R. HOE 25-YEAR CLUB

A Twenty-Five Year Club has been organized by R. Hoe & Co., Inc., for its employees. According to V. F. Regan, personnel director, 262 employees have been in employ 25 years or longer and are eligible for club membership. Each member will be presented an engraved wrist watch.

*add unrivalled prestige
to your product with*

Electroplated GOLD FINISH

Cost of electroplating gold is fully in line with your other production costs — yet brilliant tarnish-proof gold adds permanent richness and intrinsic value you can achieve no other way.

With no more than mild damp-cloth cleansing, gold finish retains its beauty indefinitely. Besides decoration of elements of household appliances, electroplated gold is recommended as a complete over-all finish for toasters, percolators, clocks, small radios, etc.

Technic Inc. equips you with controlled apparatus and electroplating solutions to maintain exacting standards and close tolerances. We design and install your equipment for electroplating gold without waste — and our engineers stand by until performance is assured. Consult us without obligation, whether in respect to a new installation or an existing system now in use.

At: DESIGN ENGINEERS

INDUSTRIAL GOLD has unique and diverse properties — physical, thermal, chemical, electrical, optical, corrosion resistant — not found in combination in any other form. One of these properties — or a combination — may do a hitherto "impossible" job for you, or economically replace steps in your present operation. Write for data sheet: "Electroplated Gold"



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THE LARGEST ENTERPRISE OF ITS KIND IN THE WORLD

D. L. RHEEM ELECTED RHEEM BOARD CHAIRMAN

Donald L. Rheem has been elected chairman of the board of Rheem Mfg. Co., Chicago, announced R. S. Rheem, president. Formerly executive vice president, D. L. Rheem was a co-founder of the company.

A. L. Walker, vice president in charge of Rheem International, has been elected executive vice president. Emerson S. Ronk has been named to the newly-created post of vice president of admin-

istration. Ronk was formerly a management consultant executive with Stewart, Dougall and Associates, Inc., New York.

NORGE JANUARY SALES UP

Factory sales of Norge home appliances in January were the fourth highest in the history of the company, according to Judson S. Sayre, president, Norge Div., Borg-Warner Corp., Chicago.

Sales were more than \$1,000,000 ahead of the monthly average of last year.

JAN.-NOV. VACUUM CLEANER SALES 14.7% OVER 1954

January-November, 1955, sales of standard-size household vacuum cleaners were 14.7% over 1954, amounting to 3,047,883 units, according to the Vacuum Cleaner Manufacturers' Association.

STRAN-STEEL VICE PRESIDENT

C. V. Blackburn has been appointed vice president, sales, Stran-Steel Corp., Ecorse, Detroit, according to Charles LeB. Homer, president.

A. B. DICK SALES MANAGER

E. P. Jordan, Jr., has been named general sales manager of A. B. Dick Co., Chicago, manufacturer of duplicating equipment and supplies, C. M. Dick, Jr., vice president of sales, announced.

IDE IS KENT VP & GEN. MGR.

It is reported that Frederick H. Ide has been elected vice president and general manager of Kent Co., Inc., Rome, N.Y.

HOELTER HEADS PERMAGLAS BUILDER SALES DEPT.

Permaglas Div., A. O. Smith Corp., Milwaukee, has announced the appoint-



ment of L. H. Hoelter to the newly-created post of manager of Builder Sales Dept.

Hoelter was formerly Permaglas district manager in the Middle West.

RHEEM PURCHASING AWARD

First winner of the newly created Rheem Annual Purchasing Award is Warren H. Innis, purchasing agent of the Richmond, Calif. plant of Rheem Mfg. Co., it has been announced by George J. Papas, general manager of purchasing.



**HERE'S
WHAT
HOLDS
YOUR
PAINT
ON**

Actual Ty-Bond Panel
magnified 10 times



Cowles Ty-Bond Zinc Phosphate Coatings give your paint, enamel, lacquer, or other finishes a base to grab and hold.

BUT IT WON'T WASTE PAINT

Cowles Ty-Bond Coatings are smooth to the touch. No deep crevices to fill. No high ridges to cover.

Gives you controlled grain structure for better adhesion without waste.

Examine this panel yourself. Send this coupon and get your Ty-Banded Test Panel.

Cowles Chemical Company
7012 Euclid Avenue, Cleveland 3, Ohio

Send me a Ty-Bond Test Panel

Name _____

Company _____

Address _____

City _____ State _____





CHEMICAL COMPANY

CLEVELAND 3, OHIO

SPEE-FLO

**HOT
spray**

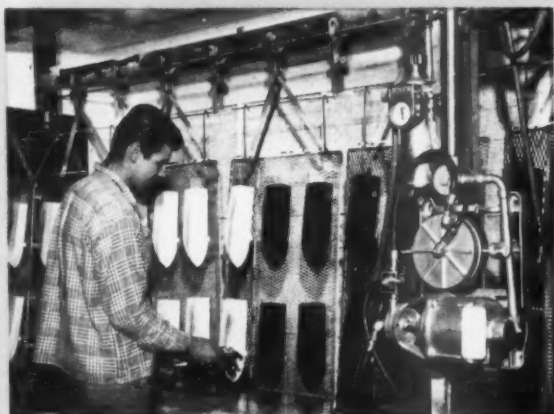
News Letter

Published by THE SPEE-FLO CORPORATION, 720 Polk Ave., Houston, Texas

Toy production increased from 65,000 to 320,000

A major bottleneck in the paint department of a West Coast toy boat manufacturer was broken with the introduction of the hot spray process of paint application.

The K & O Corporation, Van Nuys, Calif., changed from conventional spray painting to Spee-Flo hot spray, making possible a production increase of 500% annually in its Fleetline electric toy boats.



The K & O Corp. found that hot spray cut the reject ratio 80% by the elimination of blushing, sags and runs. Previous requirement for a fog coat was also eliminated.

Other advantages gained by K & O through the use of hot spray equipment are: greater quality control, faster application, smoother, glossier finish, improved coverage, and less overspray with marked material savings. One coat of hot

spray replaced two coats of conventional spray. No changes in material were required.

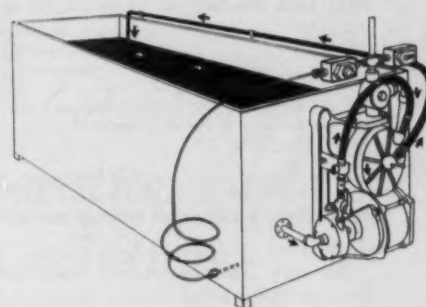
The hot spray process substitutes heat for thinner. Since hot spray requires less atomizing pressure, the blast effect of cold spray is done away with, and an even flow of heavy-bodied, low-viscosity material results. This hot spray film is smoother, and free from runs, sags and orange peel. Wasteful overspray is greatly reduced. Humidity and temperature changes do not affect the hot spray process. The Spee-Flo heater raises the paint temperature to a level where viscosity is constant and application is uniform. It is quickly installed in any conventional paint system.

Although hot spray is not new, earlier devices presented serious maintenance problems from coils that clogged and gear pumps that failed because of the effects of abrasive paint materials. The UL-approved Spee-Flo unit is coiless. It employs a simple centrifugal pump with no close tolerances or bearing surfaces to wear. Spee-Flo heaters in use at K & O "require no special maintenance and are entirely trouble-free," according to L. F. McDonough, President.



Color Change in a Minute

Rochester, N. Y. . . . Hot Spray red . . . Hot Spray green. Make the change in less than a minute with Spee-Flo's new X-30FS valve. Apply a three-mil build of enamel with one coat . . . where before it took two coats of cold spray. That's the story from this Spee-Flo installation in General Railway Signal Company's Genesee Plant. Inspecting the new Model 300 APC installation are Dick Ludecke of Rochester Industrial Supply Co. and Mel Sears, Spee-Flo's New York State representative.



Spee-Flo's Viscotroller Controls Temperature, Maintains Viscosity

The Spee-Flo Viscotroller is the newest development in temperature control to maintain constant viscosity in paint . . . for either dip tank or spray system.

UL APPROVED. The Viscotroller combines a UL approved explosion-proof heater with a precision liquid-temperature controller which actuates the heater to maintain paint at a pre-selected temperature as it circulates through the heater.

THEY'RE READY NOW. Two models, in either 300 or 600 Series, are now available for dip tank use, maintaining a selected temperature of between 70° and 110°. Series 300 is designed for tanks up to 200 gals. capacity; Series 600 for tanks up to 600 gals. One model is equipped with an automatic time control to actuate the unit prior to use.

TANK VISCOSITY RIGHT. With dip tanks, atmospheric temperature variations during a normal day adversely affect painting. Viscosity may be too heavy in the morning, too light at mid-day. Varying rate of solvent loss also hampers viscosity control.

The Viscotroller overcomes these troubles. It maintains dip tank temperatures within a plus or minus one degree range, holding viscosity constant and automatically compensating for room temperature changes and paint consumption.

IT'S LIKE THIS: Say the room temperature in your plant varies from 60° to 75° during the day, in winter. You set the automatic time control to turn on your Viscotroller before starting time to a selected temperature of 77°. Material in the dip tank will then be of the right viscosity when the work day begins, and will remain constant throughout the day.

FREE BOOKLET



Get the facts about this important development — presented in an informative and straightforward way. Write the Spee-Flo Corporation, 720 Polk Avenue, Houston, Texas.

EDITOR'S MAIL CONTINUED

→ from Page 65

request for May issue

Gentlemen:

May we have either five or six copies of your May, 1955, issue of *finish* or five or six tear sheets on our PMI Tech Meeting on pages 52, 53 and 54. . . .

H. A. Daschner, Managing Director
Pressed Metal Institute
Cleveland, Ohio

We are sorry that the supply of May issues is entirely exhausted, but we did find a few tear sheets in clipped copies, and they are on the way. Eds.

appreciate position of advertisement

Gentlemen:

We very much appreciate your placing our advertisement in the Special Rheem Section of your publication. This section on Rheem is very well done, and the fact that our ad is tied in closely with the Rheem operation should be helpful to us.

A. L. Whiton, Director of Container Sales
Chicago Mill and Lumber Company
Chicago, Illinois

This comment from a company that has advertised in *finish* since the publication's inception (over 12 years) is naturally music for both the editorial and customer service departments. Eds.

request from Syracuse University

Gentlemen:

It has been brought to my attention that subscriptions to your magazine are made without charge to engineer-

ing departments in industry. Is it possible for us to be extended the same courtesy?

This department concerns itself primarily with the education of designers for industry. We maintain a departmental library for the use of our students and should like to have your magazine on our shelves.

Arthur J. Pulos, Professor in charge
Industrial Design Department, Syracuse University
Syracuse, New York

We have a very limited circulation to engineering departments of leading universities. Your Industrial Design Department has been added. Eds.

magazine very informative

Gentlemen:

A copy of the January 1956 issue of *finish* magazine has been routed to my attention. I find this magazine very informative and would appreciate receiving future issues. . . .

L. C. Schaefer, Engineering Manager
Industrial Motor Department
Westinghouse Electric Corporation
Lima, Ohio

Gentlemen:

I found your January issue of unusual interest and am requesting an additional four issues. . . .

V. I. McCarthy, Jr., Vice President
Vulcan Containers, Inc.
Bellwood, Illinois

would like to receive magazine

Gentlemen:

We would like to receive the magazine *finish* as we feel it would be mutually advantageous to your advertisers and Motor Wheel Corporation.

At the present time a great deal of emphasis is being placed on new equipment and new ideas.

This office has been recently created to filter the information and select new equipment for purchase and installation.

L. C. Surato
Chief Methods and Equipment Engineer
Motor Wheel Corporation
Lansing, Michigan

finish is now going to engineering at Motor Wheel, and a number of key men at the Duo Therm Division. We shall certainly see that a personal copy reaches you starting with a current copy for January, 1956. Eds.

covers industry adequately

Gentlemen:

Thanks for your magazine. It's easy and quick to read—covers our industry adequately. Best wishes for the New Year and continued success.

R. F. Hornbach
Gen. Mgr.—Special Products
Geo. D. Raper Corp.
Rockford, Illinois

A much appreciated compliment. We hope to continue to merit your approval. Eds.

"inspection methods for metallic parts"

Gentlemen:


Please send us tear sheets of the article "Inspection Methods for Metallic Parts". This article was written by A. S. Billings and was published in volume 12 in the October 1955 issue on pages 36-37, 78, 83-84.

E. C. Wallace
Metallurgist
Barber-Colman Company
Rockford, Illinois

The tear sheets are on the way. Eds.

NEWCOMB-DETROIT

PIONEERS IN ENGINEERING,
MANUFACTURING & INSTALLING OF



**INDUSTRIAL
OVENS**

SPRAY BOOTHS

PARTS WASHERS

DUST COLLECTORS


**HEAT
and AIR
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MACCO BLU- COAT

- the  ideal
between-operation rust
proofing solution -

PREVENTS RUST

RECORDER precision parts are being given the Macco Blucoat Rust Preventive treatment by one of the nation's leading electronic manufacturers.

GEARS, cut, ground and tempered, are treated with Blucoat to prevent rust during storage, shipping, and assembly.

CARBURETOR bodies and large engine castings being treated with Macco Blucoat to prevent rust after machining and during storage.

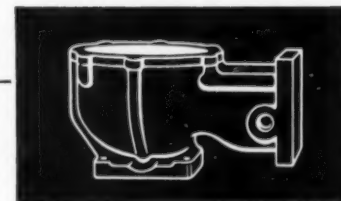
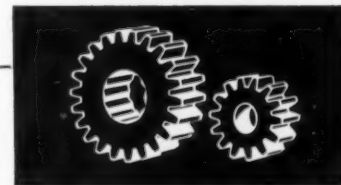
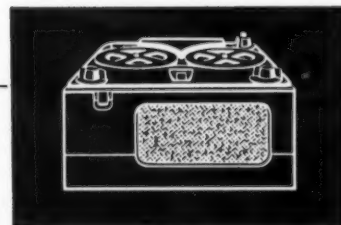
AUTO bodies of some of the world's largest body manufacturers are given the Blucoat treatment to prevent rust before painting.

5 Reasons for BLUCOAT'S NATIONAL ACCEPTANCE

Macco Blucoat is the amazingly efficient rust preventive used by leading metal processors and fabricating manufacturers everywhere. Endorsed as the only practical method of preventing rust between production operations and assembly—and during transportation and storage.

1. Water soluble—economical, yet extremely efficient.
2. Adaptable to an almost unlimited variety of applications and conditions.
3. Works equally well on steel, cast iron, forgings or die castings.
4. Leaves no oily film. Assures better adhesion. Collects less dust, chips, etc.
5. Blucoat has withstood perfectly a salt spray test of more than 80 hours. Vastly superior to soluble oil. Non-poisonous. No alcohol. Extremely stable.

For the prevention of rust, Blucoat positively has no equal. Whether for the finest of automobile bodies or simply bare tie-wires, Blucoat's versatility makes it most indispensable for any processing plant.



Write today or call a Macco sales engineer

MACCO
PRODUCTS COMPANY

9210 SO. SANGAMON STREET • CHICAGO 90, ILLINOIS

PACKS A DOZEN AUTOMATIC TRANSMISSIONS PER BOX

A dozen automatic transmissions for the famous Jaguar line of automobiles are packed in this wirebound box. The package, entered by Harold Freeman,



shown, of the Jerome F. Gould Corp., Brooklyn and Detroit export packers, won first place in the recent national packaging competition in the Export Division.



Hold Tuttle & Kift annual sales meet at Chicago

The Drake Hotel, Chicago, was the setting for Tuttle & Kift, Inc., personnel's annual sales meeting, held Jan. 19. Highlight of the evening was President J. A. Sullivan's remarks on the consolidation of the Tuttle and Kift organization and the strengthening of TK's field selling force to better serve the company's customers. Sullivan,

emphasized TK's intention of submitting new heat applications in line with the developments in the electric range industry. Tuttle and Kift, Inc., is a subsidiary of Ferro Corp., Cleveland, O.

It is reported that Elmer B. Dunkak has been elected vice president of sales, Selas Corp. of America, Philadelphia.

THE HEART of YOUR ASSEMBLY JOBS!



CUYAHOGA

"SPECIALS" include threaded parts, springs, stampings, moulding and stud clips, screw fasteners and special cold headings. Contact your Cuyahoga representative.



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10270 BEREA ROAD • CLEVELAND 2 OHIO

From Tomatoes to Toys
You'll Find **MEYERCORD**
Decal Nameplates
on almost everything...

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to Identify—Instruct—
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Meyercord Decals on tomatoes? Yes, we make specially engineered Meyercord Nameplate Decals by the millions for every manner of product... from edibles to hard goods. You'll find Meyercord Decals giving added realism and interest to children's toys... from baby things to electric trains and games for the teenager. You'll find Meyercord Nameplate Decals on jet plane engines, withstanding tremendous heat... and on jet fuel lines, withstanding the inroads of powerful solvents. You'll find Meyercord Decal Nameplates on the panels of armed forces electronic equipment subjected to every climatic condition. Write us about your nameplate and marking problems... we promise you a surprise.

The Meyercord "Mark It" Decal Nameplate Manual is yours without cost or obligation... write for it on your company letterhead—today.



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World's Largest Decalcomania Manufacturers

DEPT. P-321, 5323 WEST LAKE STREET • CHICAGO 44, ILLINOIS

for better heating elements, switches and controls



Development of "best selling appliances" is a *team* operation involving sales, engineering and production . . . and, through purchasing, the best values obtainable from outside suppliers.

TK has long been known for "best values" considered from any of these four angles. TK products give your sales department exclusive selling features. They meet your engineering standards, yet lower your production costs. Finally, TK gives purchasing top values—and required service.

So . . . for *better* heating elements, switches and controls . . . for all appliances and equipment . . . *better see* TK!



TUTTLE & KIFT, INC.
ELECTRIC HEATING ELEMENTS • DEVICES • SWITCHES & CONTROLS
1823 N. MONITOR AVENUE • CHICAGO 39, ILLINOIS



FRUSTRATIN'....AIN'T IT?

**... BUT I JUST CAN'T SCRATCH A
VITREO PORCELAIN ENAMEL FINISH!**



Plan for the Lifetime Finish

VITREO

Pffftt! For months I've been trying to get my talons into that nice new smooth table surface, and I'm telling you, they're as sharp as any Tabby's on the block! Guess I'd better stop trying or I won't have any protection against that darn fool terrier down the street.

Yep, the people I live with sure had cat sense when they insisted upon a VITREO Porcelain Enamel Finish. They knew that the only surface that would retain its useful, sleek beauty through years of tough use would be Porcelain Enamel. They knew that hot irons and skillets, a rough surface scraping across it, scalding liquids and burning grease; even my sharp claws would fail to harm it. And, they'll discover that their table and appliance tops won't yellow with age and will always be easy to keep clean.

Manufacturers—before you start production on a new product—ask Vitreous to show how practical and inexpensive a Porcelain Enamel Finish can be for you. I'd stake all my nine lives on Porcelain Enamel—the purrrrrfect surface!

VITREOUS STEEL PRODUCTS CO.

BOX 3991 • CLEVELAND 20, OHIO (Factory at Nappanee, Indiana)

NEWS about Suppliers

O. HOMMEL APPOINTMENTS

Shipp C. Davis has been appointed manager of porcelain enamel frit sales and service in southeastern United States, according to Ernest M. Hommel, president, O. Hommel Co., Pittsburgh.

Horace L. Latimer has been appointed to the manufacturing and research staff.

STRATHEARN TO SORENG AS VP & ENG. DIRECTOR

Donald M. Strathearn, Jr., has joined Soreng Div., Controls Corp. of America, as vice president and director of engineering, announced President, Louis Putze.

Formerly Strathearn held the position of director of engineering for the Bendix Home Appliances Div. of Avco Mfg. Corp.

Willis W. Mansfield has joined Soreng as director of manufacturing. He was most recently general factory manager at Penn Controls.

DR. VON FISCHER TO RESEARCH POST AT GLIDDEN

Dr. William von Fischer, formerly head of the department of chemistry and chemical engineering at Case Institute of Technology, has been appointed coordinator of research and development for The Glidden Co., Cleveland. The announcement was made by Dwight P. Joyce, Glidden chairman and president.

Dr. von Fischer is the editor of "Paint and Varnish Technology" and co-editor of "Organic Protective Coatings". He is the author of numerous technical articles.

A. D. Duncan, vice president and general manager of the paint division,

has announced the appointment of Joseph Sadler as technical consultant for that division.

KAISER ALUMINUM EXPANSION

Kaiser Aluminum & Chemical Corp., Baton Rouge, La., will construct an \$8 million caustic-chlorine plant adjacent to the company's new alumina plant to be built at Gramercy, La.

The Gramercy facilities, including both plants, will be built at a total cost of \$60 million, and are part of a \$400 million expansion program which also includes a new 220,000 ton reduction plant at Ravenswood, W. Va.

SHAKEPROOF DIVIDES INTO TWO DIVISIONS

The Shakeproof Div. of Ill. Tool Works has re-organized into two divisions. Harold Byron Smith, president of the parent company, announced that highly specialized fasteners with limited application will be designed and manufactured by the new Fastex Div.

Silas S. Cathcart has been named general manager of the Fastex Div., and James Norman has been appointed sales manager.

Fastex will occupy the Des Plaines, Ill., plant, and Shakeproof Div.'s production facilities will be centralized in the Elgin, Ill., plant.

ARMCO SCHOLARSHIP PROGRAM

Armco Foundation, Middletown, Ohio, is sponsoring a new scholarship program designed to encourage high school seniors to study engineering or physical science, announced C. H. Murray, vice president in charge of personal and public relations for Armco Steel Corp.



DR. VON FISCHER



JOSEPH SADLER

KELLNER IS PEMCO VP

Albert Kellner, export manager, Pemco Corp., Baltimore, Md., has been elected vice president in charge of export, announced Richard H. Turk, president and board chairman.

ROLLED ALLOYS BUILDS NEW JERSEY WAREHOUSE

Rolled Alloys, Inc., Detroit, is building a warehouse containing 16,000 square feet in South River, N.J., announced Rollo W. Boring, vice president of sales.

A. H. Wilson and John Maxson will be district manager and district sales manager, respectively.

FOOTE NAMES FENTRESS

James Fentress has been named general sales manager of Foote Mineral Co., Philadelphia, according to L. G. Bliss, newly-elected president. Bliss succeeded Gordon H. Chambers, who was named chairman of the board.

POOR & CO. UPS TWO

E. C. Bauer, president, Poor & Co., has announced the promotion of W. F. Stark to vice president and William F. Mooney to vice president in charge of sales.

INLAND STEEL TOP MANAGEMENT CHANGES

Inland Steel Co., Chicago, announces that Clarence B. Randall will retire as chairman of the board on April 1. His vacated post will not be filled, and the

LOUIS PUTZE



D. M. STRATHEARN



JAMES FENTRESS



ALBERT KELLNER



R. W. JOHNSON



H. L. LATIMER





Forty year service award—was given to Philip J. Dietz, left, traffic manager for Pemco Corp., Baltimore, by Richard H. Turk, president and chairman of the board, at the 18th annual dinner of the Pemco Honor Service Society. Thirty other employees also received awards.

responsibilities of chief executive officer will be transferred to the president, Joseph L. Block.

Edward L. Ryerson, chairman of the executive committee, will also retire in April.

P. D. Block, Jr., has been elected senior vice president, and Neele E. Stearns has been elected assistant to the president.

REED, AMERICAN AIR FILTER CHAIRMAN, DIES

W. M. Reed, founder and chairman of the board of American Air Filter Co., Inc., died in Ft. Lauderdale, Fla., February 2.

RINSHED-MASON APPTS.

Frederick G. Weed, president, Rinshed-Mason Co., Detroit, announces that William Vyn, formerly industrial sales manager, is taking over the Detroit sales territory vacated by the retirement of William G. Haarz. Robert C. Aikin succeeds Vyn as industrial sales manager.

UNION CARBIDE FORMS SILICONE DIVISION

William B. Humes, formerly vice president of Union Carbide Canada, Ltd., has been appointed president of the newly-created Silicones Div. of Union Carbide and Carbon Corp., New York City, announced Morse G. Dial, president of the parent company.

T. J. Coleman, formerly general manager of the Linde Silicones Dept., has been appointed general manager of the new division.

THOMAS E. BUTLER DIES

Thomas E. Butler, sales and service engineer for the O. Hommel Co., passed away in Sebring, Ohio, on December 7.

LUMLY IS VITRO DIRECTOR

Thomas M. Lumly has been elected a director of Vitro Corp. of America, according to J. Carlton Ward, Jr., president. Lumly is president of The Refinery Engineering Co., Tulsa, Okla., which became an operating division of Vitro the first of the year.

CONTROLS CORP. OF AMERICA COMBINES SORENG AND A-P CONTROLS



Controls Corp. of America, Soreng Division, has its general offices in this plant in Schiller Park, Ill., Chicago suburb.



Manufacturing facilities of Controls Corp. of America, A-P Div., consist of five plants located in the U.S., Canada and Europe.

Louis Putze, president, Soreng Products Corp., Schiller Park, Ill., and Roy W. Johnson, president, A-P Controls Corp., Milwaukee, have jointly announced that their two companies have merged to form the newly created Controls Corp. of America.

Controls Corp. of America combines the facilities of the two companies, with 1955 sales of about \$25,000,000. The new corporation will be headed by Louis Putze as president and Roy W. Johnson as chairman of the board. Each company forming this new corporation will

VITRO WEST COAST BRANCH

Vitro Mfg. Co., Pittsburgh, has opened a West Coast branch, located at 1625 West El Segundo Blvd., Compton, Cal., announced Joseph Boyce, general manager. Roland Beach has been named manager of the new branch.

SOUTHERN SCREW INSTALLS CARBURIZING FURNACE

As part of its expansion program Southern Screw Co., Statesville, N.C., has installed its own carburizing furnace, eliminating the necessity of sending tapping screws to other cities for the process, announced Fritz Jensen, president.

REYNOLDS EXECUTIVE VP

It is reported that J. Louis Reynolds has been elected executive vice president of Reynolds Metals Co., N.Y.

retain its individual identity and will continue to operate as a division under its present name, the report states.

Manufacturing facilities of this new corporation comprise eight manufacturing plants in the United States, Canada and Europe, with a total floor space of more than 500,000 square feet.

The diversified product line resulting from the merger includes components of interest to the home laundry, home heating, commercial refrigeration, air conditioning and automotive industries.



\$5,000 porcelain enamel design award goes to 24-year-old architect

Henry S. Brinkers, 24-year-old architect engaged in research at the University of Illinois, was awarded the \$5,000 grand prize in the national \$25,000 Porcelain Enamel Design Competition sponsored by Ferro Corp. of Cleveland. Plans for a community center for youth, designed by Brinkers, topped more than 570 entries in the competition conducted by the *Architectural Forum* magazine.

The contest offered two categories — plans for an elementary school and plans for a community youth center. In addition to the grand prize, cash prizes of \$3,000, \$2,000 and \$1,000

were made to the first, second and third place winners in each classification.

Horacio Caminos and Eduardo F. Canalano of Raleigh, N. C., won first in the elementary school division. Second place went to S. M. Goldner, Chadburne Shumard, and Hanford Yang of Merion, Penn. Third place winner was Thomas Lam of Cranbrook Academy of Art, Bloomfield Hills, Mich. In the community youth center design division, C. K. Chen and L. C. Chen of Briarwood, N.Y., were first; C. D. Elliott and George Matsumoto of Raleigh, N. C., second; and Don Goodhue of Cambridge, third.

Presentation of Award and a check for \$5,000 is made by Ferro V.P. Hutt to the winner. Lower picture: Vice President William N. Noble, Ferro; Cecil D. Elliott, Raleigh, N. C.; Horacio Caminos, Raleigh, N.C.; President C. Dudley Clawson of Ferro; C. K. Chen of Briarwood, N.Y.; H. S. Brinkers of Urbana, Ill.; Hanford Yang of Merion, Penn.; V.P. Hutt (see top photo); Don Goodhue of Cambridge, Mass., and Thomas Lam of Bloomfield Hills, Mich.

The seven winners were guests at the Awards Dinner held in Cleveland with Vice President Glenn A. Hutt, of Ferro, serving as host. Said Hutt, "the competition achieved its objectives in gratifying measure. These objectives were to stimulate design interest in, and explore new uses for porcelain enamel steel and aluminum."

John L. Reid, internationally known San Francisco architect, was awards jury chairman. The jury included architects Pietro Belluschi of Cambridge, Mass., E. S. Saarinen of Bloomfield, Mich., Hugh Stubbins of Boston and Robert Posey of New York.



Full of pride — Mrs. Brinker looks on as her award winner husband points out his design which was one of the entry panels displayed at the awards dinner.

Besides the grand awards, honorable mention awards of \$500 were given for eighteen other entries.

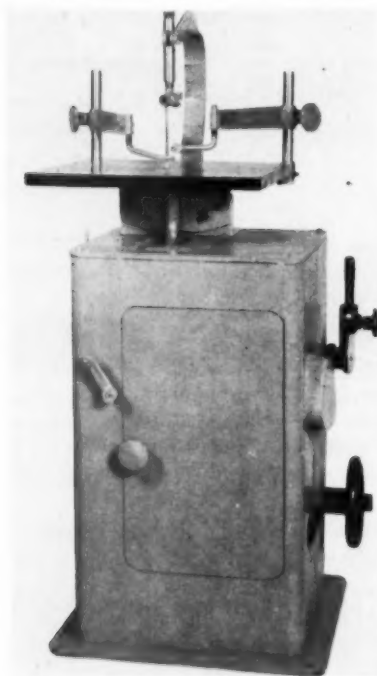
At the Awards Dinner, Douglas Haskell, editor of *Architectural Forum*, stated: "Of the eleven design competitions conducted by AF since 1934, none has been so successful as the porcelain enamel design competition sponsored by Ferro Corp. It has focused the attention and talents of the nation's architects and architectural students on the many logical uses of porcelain enamel metal in modern buildings."



New Supplies and Equipment

C-10. Floor type die filer

New New heavy duty floor type die filer will saw and file to the center of a 26 inch circle and provides 6 inch clearance beneath of overarm. A feature of construction is a tilting powered arbor, permitting the operator to work on a level table.



This table may be tilted when necessary. Die filer has variable speeds from 30 to 350 strokes per minute and variable strokes from 0 to 5 inches, all in infinite variations. Overarms are power actuated, thus qualifying the machine for the larger precision filing and sawing operations.

C-11. Blast cleaning abrasive

New A new steel grit blast cleaning abrasive, for producing etched finishes, has been announced. The grit is of high-carbon electric arc furnace steel, specially heat treated to provide the toughness required for blast cleaning operations. It is in the same hardness range as chilled iron abrasives. It is, however, free from the brittle carbides which cause rapid breakdown of chilled iron. The grit shape endures for

More Information

For more information on new supplies, equipment and literature reviewed here, fill out the order form or write to us on your company stationery.

hundreds of cycles without the sharp edges that are caused by fracturing. Lack of these cutting edges is said to reduce blast cleaning machine wear and maintenance. The grit provides a deep etch on metallic surfaces for bonding. Coatings of enamel, paint, plating, etc. readily cling to the etched surface, according to the manufacturer.

C-12. Metal cleaner

New A new metal cleaner has been found to be effective for spray cleaning from 70° to 200° F. It contains a rust inhibitor to protect cast iron and steel between manufacturing operations. It is said to give good detergency in all waters at all temperatures and cut maintenance costs in washers with the elimination of clogging and scaling. According to the manufacturer, the product is mild, easy to handle, non-dusty, non-scaling and may be used at

high concentrations in high pressure washers without causing foaming troubles.

C-14. Automatic clutch for fhp motors

New A new, low-priced automatic clutch designed for 1/6, 1/4 and 1/3 hp electric motors has been introduced. These automatic clutches

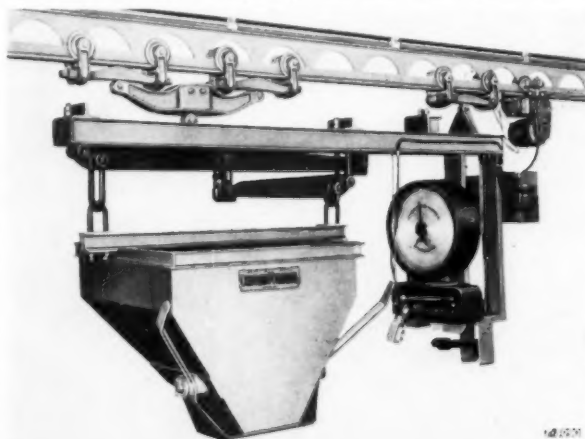


are recommended for original equipment on air conditioners, furnace blowers, automatic washers, sweepers, dryers, power tools, vacuum pumps and other fhp powered equipment. With only one moving element it reduces the length of sustained inrush current by permitting the motor to reach full speed before any load is applied.

C-13. Tractor-driven traveling hopper with scale

New Development of a tractor-driven traveling hopper with scale has been announced. Designed for handling bulk materials, the hopper is of one cubic yard capacity, and has

an extra large opening at top for filling. It is emptied by means of a bottom gate which can be manipulated from both sides of the bucket. A 5000 lb. dial scale with tare beam enables accurate weighing of ingredients as they are gathered from overhead storage bins. Spring clip markers on the scale are said to facilitate quick weighing when similar batches are made up repeatedly. The unit is propelled by a tram rail tractor drive at 150 fpm. Controls are push-button automatic.





Industrial Literature

310. Perforated materials catalog

New A catalog of perforated materials illustrates hundreds of different standard patterns at actual size and gives information as to hold size, centers and percent of open area. Other sizes of standard patterns are listed in tables below corresponding patterns. Information is given as to fabrication facilities, ordering, materials that can be perforated and list of perforated sheets carried in stock.

311. "Keep Operating Costs Down—When Temperatures Go Up"

New This booklet provides information on a nickel-chromium alloy which resists oxidizing and other corrosive conditions common in enameling operations.

312. Metal finishing systems

New A new 16 page color bulletin on metal finishing systems is being offered. Bulletin 51 is highly illustrated with photographs, drawings and diagrams. It contains suggestions, tips and ideas on modern ways to achieve better finishes at lower cost, faster production and smoother handling of numerous products such as refrigerators, power tools and automobile frames.

313. Package testing booklet

New Manufacturers who package their merchandise in corrugated boxes will find information regarding the testing of their packages in the new edition of a Little Packaging Library booklet, "How to Test Corrugated Boxes".

314. Aluminum mill products

New Information on aluminum mill products is contained in a new 24 page booklet. The brochure offers data on aluminum alloys, forms, mechanical and physical properties, applications, fabricating and finishing techniques and availability. Products

include sheet, plate, foil, circles, pig, alloy ingot, rod bar, wire, electrical conductor, forgings, extrusions, extrusion billets, etc.

315. Testing equipment

New This catalog describes a wide range of types and sizes of packaging testing equipment.

316. Heat transfer data

New A new heat transfer bulletin contains data and illustrations of interest to designers and users of custom-built heat transfer equipment. Included are a table of heat transfer rates for various duties, tube sheet layout tables and a sample calculating sheet. The 16-page bulletin also illustrates and describes a number of heat exchanger types.

317. Industrial ceramic catalog

New This catalog gives complete information on balls, mill lining, mill jars, jar mills, special ceramics, etc.

318. Catalog on heat exchangers

New A new catalog is available giving complete data on heat exchangers for all pickling, plating and anodizing solutions.

319. Press catalog

New This catalog provides basic data on a entire line of presses for jobs from 60 tons up.

320. Rubber roll covering

New Mill engineers and machine designers in the plastics, metalworking and other roll-using industries will be interested in the report, "How Thick Should A Rubber Roll Covering Be?".

321. Catalog on switches

New A catalog is offered on a complete line of switches, including snap-in appliance switches.

322. Electroplated gold

New A data sheet describes tarnish-proof electroplated gold, which is recommended for decorative touches on appliances and as an over-all finish for toasters, percolators, etc.

323. Magnetic starter bulletin

New A new 8 page illustrated publication describing a complete line of magnetic starters for air conditioning and refrigeration equipment is available.

324. Stainless fastener data

New A two-color, 52 page stainless fastener data book contains thumb index for easy reference. The book includes illustration, thread and size specifications and availability in a variety of corrosion resistant metals of forty basic fastening devices.

FINISH
York Street at Park Avenue
Elmhurst, Illinois

Please forward to me at once information on the new supplies and equipment and new industrial literature as enumerated below:

No. _____ No. _____ No. _____ No. _____
No. _____ No. _____ No. _____ No. _____
Name _____ Title _____
Company _____
Company Address _____
City _____ Zone _____ State _____

Better Porcelain Enameling Starts Here

The "art" of porcelain enameling has become a modern, continuous-flow production process, making possible better and better products at ever lower relative costs.

In many new facilities for porcelain enameling, *automation* devices save time and money while electronic controls assure the highest standard of quality and uniformity in the finished products.

Designed and built by Ferro, these "model" porcelain enameling plants started with miniature models such as you see

below. Into them has gone the know-how and experience of 35 years of industry leadership, during which time Ferro has built nearly 90% of all modern porcelain enameling facilities.

There is no question but that porcelain enamel is coming into ever wider and more extensive use. Naturally, the most efficient facilities will be the most profitable. Can we help *you* get a bigger, more profitable share of this rapidly expanding business?



FERRO CORPORATION

Engineering Division

4150 EAST 56th STREET • CLEVELAND 5, OHIO

Supplier News

→ from Page 78

HERMAN NELSON DIES

Herman W. Nelson, founder of the company which bore his name until it merged with American Air Filter Co., Inc., in 1950, died January 11 in his home in Moline, Ill.

PENNSYLVANIA SALT APPTS.

Robert M. Burford, Pittsburgh district sales manager for Pennsylvania Salt Mfg. Co.'s Metal Processing Dept., has announced the appointments of W. Scott McCormick as sales representative and Gene Edwards as technical service engineer for the Pittsburgh district.

Joseph J. Duffy, sales manager, has announced the appointment of John Mordica as field sales supervisor for drawing lubricants, operating out of the Chicago territory.

ROBERTSHAW-FULTON APPT.

Robertshaw-Fulton Controls Co. has announced the appointment of M. R. Gilbert, Jr., as district manager of the heating controls division in the Chicago area.

BINKS NAMES SALES REP.

Ray O. Day has been appointed sales representative for the Binks Mfg. Co. in the Denver area. Day's address is 23 South Depew Drive, Denver 14.

HUDSON NAMED TREASURER OF ARNOLT CORP.

Election of Arvia E. Hudson as treasurer and controller of Arnolt Corp., Warsaw, Ind., was announced recently by S. H. Arnolt, president.

Hudson was formerly secretary and controller of O. A. Sutton Corp., Wichita, Kan.

Arnolt manufactures marine equipment and formed steel tubing for dinette furniture.

BETHLEHEM STEEL SALES MGR.

It is reported that Richard S. Taylor has been appointed sales manager of Bethlehem Steel Co., Philadelphia.

BRIGGS BUILDING PROGRAM

The Plumbing Ware Div. of Briggs Mfg. Co., Detroit, has announced a \$7,000,000 building program.

According to Everett E. Lundberg, a finish MARCH • 1956

new steel enameling plant, an office building and a showroom will be erected on the company's 15 Mile Road property.

NEW HERCULES POWDER PLANT

Construction has started on a new \$6,000,000 pentaerythritol (PE) plant for Hercules Powder Co. at Louisiana, Mo.

Pentaerythritol is used in paints, varnishes and lacquers, in core oils required for many castings, plasticizers, resins, adhesives and in other chemicals.

RESISTANCE WELDING REPORT

The Resistance Welder Manufacturers' Association announces that new business during 1955 showed an increase of nearly 33% over orders received during 1954.

PERRAULT TO BLISS BOARD

George Perrault, Jr., manager of the Salem, Ohio, Rolling Mill Div. of E. W. Bliss Co., was appointed vice president of the company at a meeting of the board, announced Howard U. Herrick, president.



With Chicago Rubber's NEW COSMO EXPANDER WHEEL

You'll get faster grinding • Better work
Longer belt life • Easier trouble-free performance
Instant abrasive change • No down time



Cosmo Expanders up to 2" diameters available with 1/4" mandrels for hand tools. Larger sizes up to 8" diameters—arbor hole type only. Specials to your specifications.

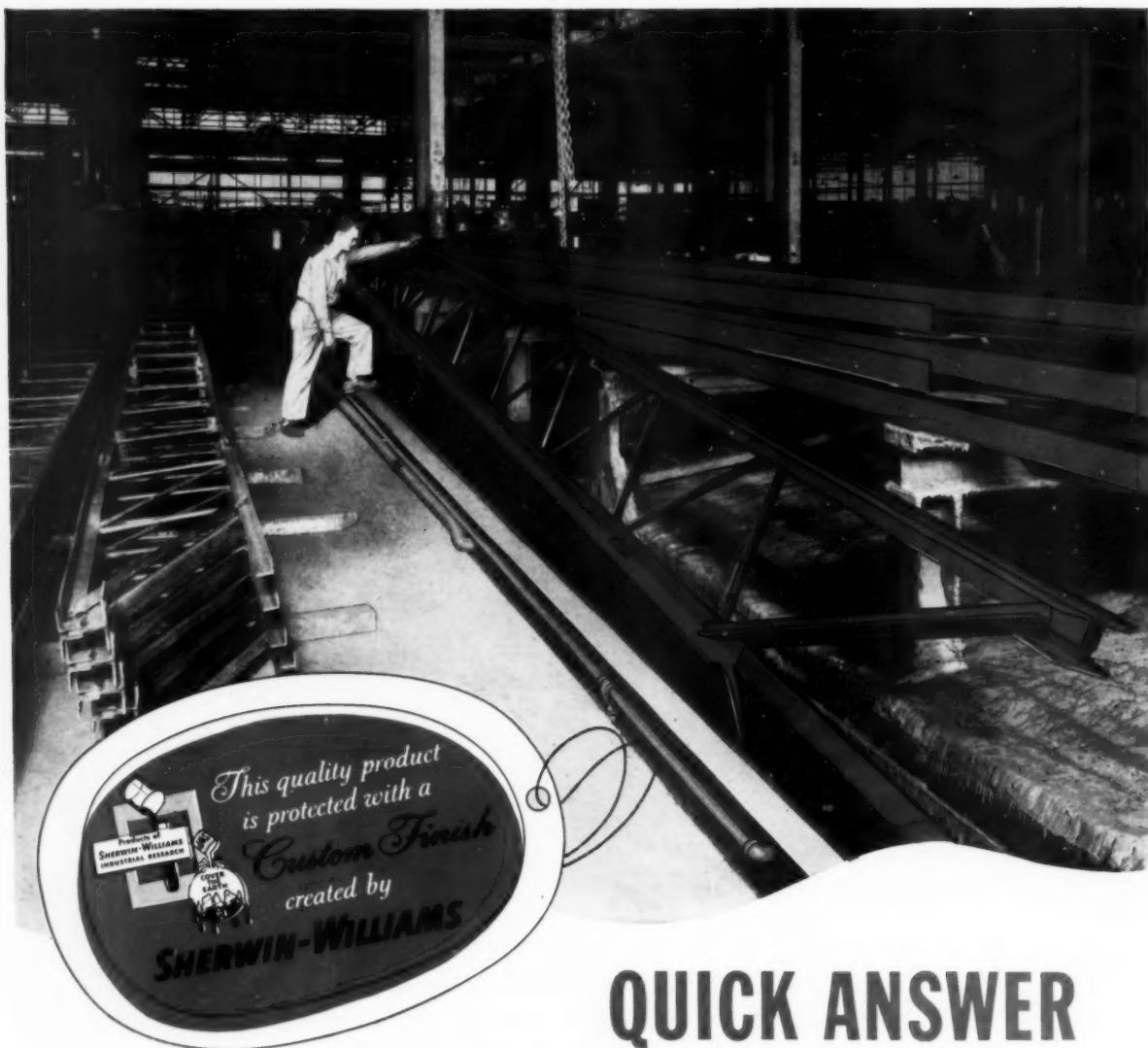
This brand new slotted rubber Cosmo Expander wheel cuts down high shop costs and valuable time. It's easier to operate and will allow you to get all the usable life out of your abrasive bands and sleeves. To change bands—no tools necessary. Slip it on and the centrifugal force exerted by this wheel holds the abrasive element tightly with no possibility of slipping—replacement becomes a matter of seconds. And what's most important, you will instantly notice a vast improvement in quality—the higher degree of resiliency in the Cosmo Expander will give you the best work you've ever done. You can't miss. Write for descriptive literature today.

"REMEMBER, IT'S THE WHEEL THAT DOES THE WORK"



CHICAGO RUBBER COMPANY, INC.

2620 CLYBOURN AVE. • CHICAGO 14, ILLINOIS



QUICK ANSWER to lengthy painting problems

What's the quickest way to shop-coat fabricated long-span steel joists?

Ceco Steel Products engineers found the answer in this 1700-gallon, 60-foot by 30-inch dip tank, with the help of Sherwin-Williams Technical Service specialists.

Carefully developed formulations, rigidly checked, maintain proper tank stability. At the same time, a high rate of drying speed permits

stacking and shipping with a minimum of delay or damage to the film in handling.

Ceco's finishing problem is just one example of the broad range of metal and wood product finishing problems Sherwin-Williams specialists are equipped to help you solve.

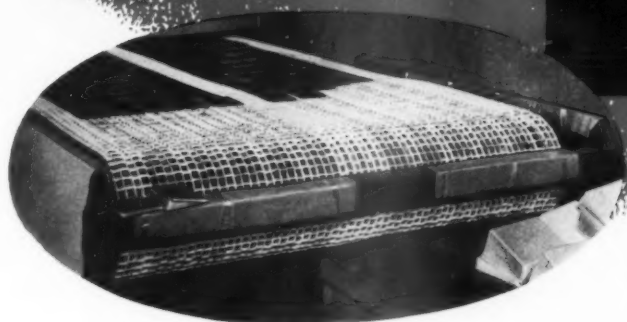
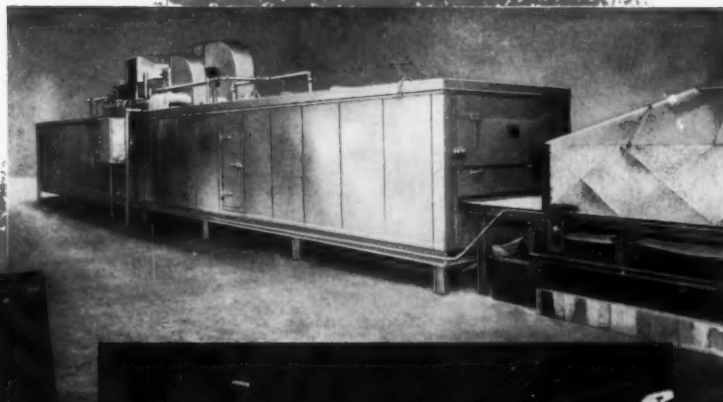
Investigate—write The Sherwin-Williams Co., General Industrial Division, Cleveland 1, Ohio, or Montreal, Canada.



SHERWIN-WILLIAMS
INDUSTRIAL FINISHES

**This "Famous Name"
in Tile
bakes over 75,600
pieces per day**

with new
BURDETT
"Radiant Heat"
Conveyor Type
Oven



Duratile of Texas, manufacturers of the famous "Duratile" Aluminum Wall Tile, was faced with the common problem of MORE . . . MORE . . . MORE production to meet the fast increasing demand for their quality product. Speed was important, but obviously quality was equally important. Comparison of baking methods and heating principles available, left no doubt as to the desired speed of production . . . highest quality of the finished product . . . or, design flexibility to allow for future increase in output by Burdett Ovens.

The BURDETT OVEN design, illustrated, provides ample flexibility to permit future increase in production without equipment change. A tough, high gloss, thoro dry . . . in fact, improved quality . . . is obtained with a 9 minute bake at 320° F. and a conveyor speed of 6 feet per minute. Finish is a synthetic enamel. Temperature range of this oven allows up to 450° F. Conveyor is mesh belt 60" wide. Paint is automatically sprayed. Inherent features of all Burdett "Radiant Heat" systems are: short baking cycle, thoro and uniform bake, exceptionally close control, low cost of operation and essentially no maintenance.

Be sure your System is
"BURDETT"
—whether "Radiant" or "Convection"

Write for the Burdett story

BURDETT
MANUFACTURING COMPANY

3401 West Madison Street, Chicago 24, Illinois

Detroit Philadelphia New York Cleveland Dallas

Manufacturers of
COMPLETE FINISHING SYSTEMS — "RADIANT-HEAT SYSTEMS", OVENS, HEATERS,
AIR MAKE-UP UNITS, SPRAY BOOTHS AND WASHERS

Stainless steel breaks all records

PRODUCTION of stainless and heat resisting steels in 1955 hit an all-time high with an increase of more than 40% over the previous year, according to preliminary figures released by American Iron and Steel Institute. Production for the year was 1,191,177 net ingot tons, compared to 852,021 net tons for 1954.

Stainless steel has shown a remarkable advance as compared to other metals. The 40% increase in stainless production during 1955 is even greater than the overall steel increase of approximately 36%, which in turn leads other significant metal production advances.

"This record-breaking increase indicates not only a general rise in business activity, but also an accelerating demand for stainless steel for industrial and consumer products," said R. E. Paret, of the institute. He further pointed out that this demand has been caused by a rising recognition of stainless steel's ability to give high performance and economy in industrial applications, and by the consuming public, which likes stainless steel's combination of glamour and practicality.

Over 30 standard AISI stainless steel types, as well as two heat resisting types, are included in these figures. A total of 643,161 net tons of chromium-nickel 300 series stainless, including the recently introduced chromium-nickel-manganese 200 series, were produced. The production of chromium stainless steel, the 400 series, amounted to 513,472 tons.

The chromium types, or the AISI type 400 series, show a general increase in output above the average 40% for all types. Type 430 shows an increase over the previous year of 56%; type 416, 50%; and type 410, 51%. Mr. Paret noted that until the figures of consumption by specific markets are available, one can only speculate on the reasons for this. He did, however, note that there has been a tremendous use of type 430 by the automotive industry. Moreover, it is possible that industry confidence in the 400 series to perform well in many varied applications is still increasing.

During the Korean War, industry turned to the chromium types because of the nickel allocations. Experience indicated

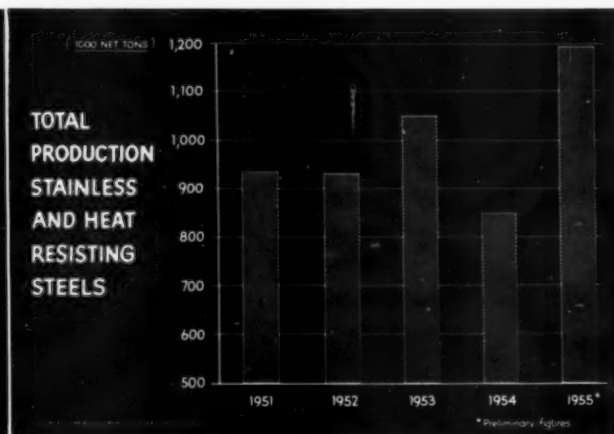
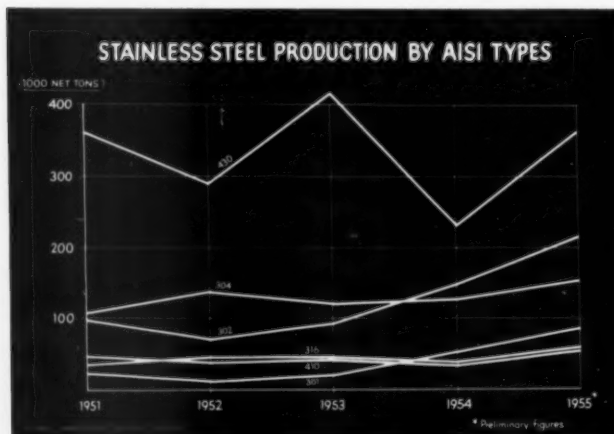


All time high—for stainless steel production was in 1955 with 1,191,177 net ingot tons, according to the American Iron and Steel Institute. Here one of the many products of stainless steel ingots, cold rolled strip, is being fed into an annealing furnace from coils.

that the chromium types need not be considered substitutes for chromium-nickel types, but instead are highly usable materials and preferable for many uses.

It was also pointed out that AISI type 301 showed a 59% increase in production over the previous year. Type 301 is capable of being cold worked to exceedingly high strength. Thus, it is extensively used in the transportation industry, where light-weight, high strength construction is required and where good corrosion resistance means economy through long operating life.

→ Continued on ST-12





March • 1956

safe transit

FROM ASSEMBLY LINE TO FINAL CUSTOMER

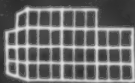
more

Wirebounds

used in 1955
than any previous year!

BECAUSE WIREBOUND BOXES AND CRATES

STACK BETTER



STORE BETTER



AND HANDLE BETTER



INSIDE OR OUT

IN ANY KIND OF WEATHER



NOTHING

TOO BIG

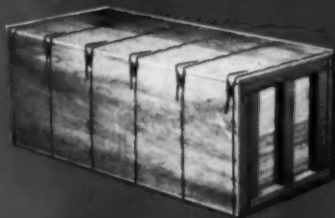


...NOTHING TOO HEAVY



NOTHING

TOO DIFFICULT, ALL AT A LOWER TOTAL COST!



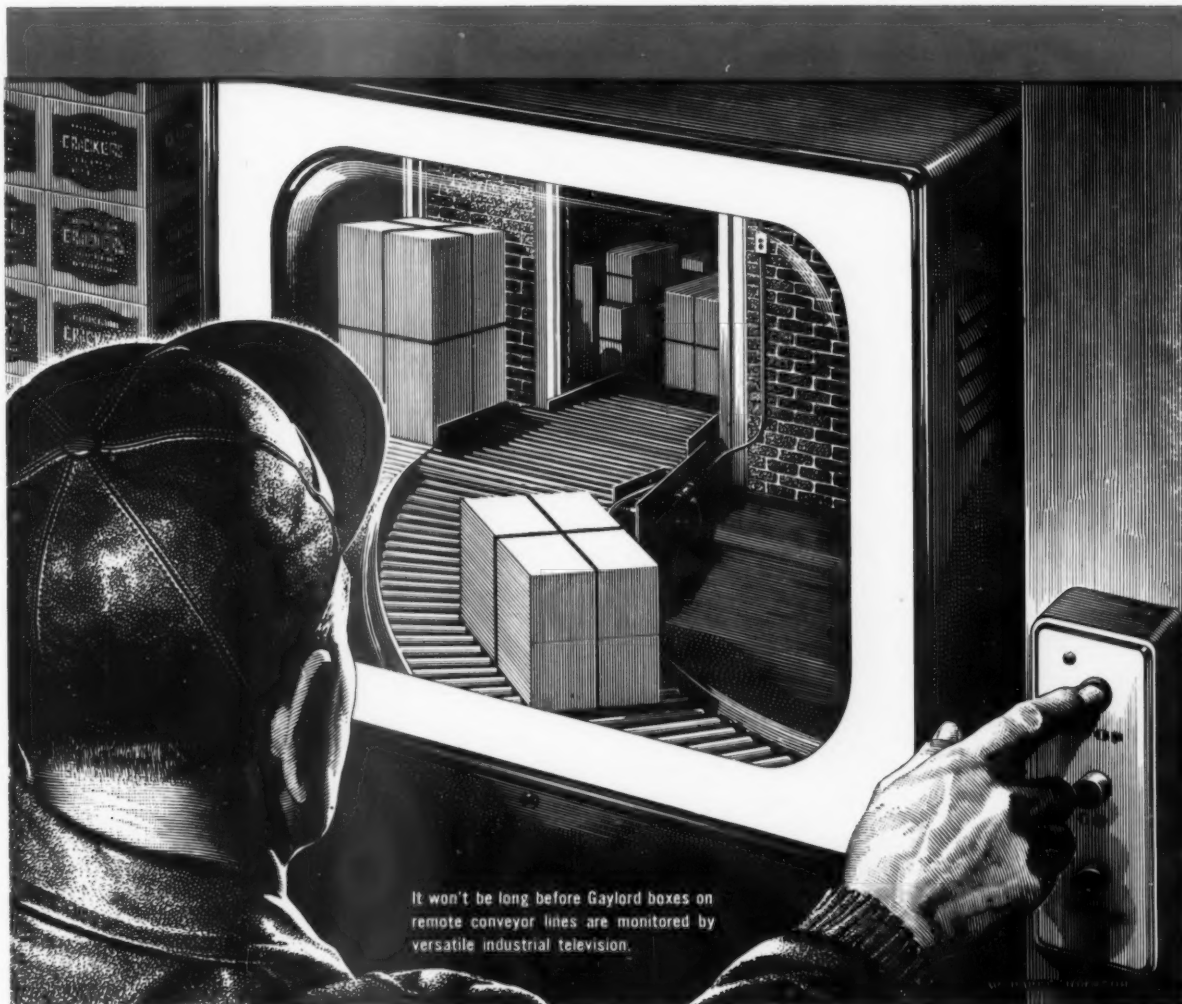
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Write on your letterhead for:

- ☐ A Sales Engineer To Call
- ☐ What To Expect From Wirebounds (booklet of general application) and/or Booklets of Specific Wirebound Application To
 - ☐ Materials Handling ☐ Stacking and Warehousing
 - ☐ Packing and Handling Heavy Loads

WIREBOUND BOX MANUFACTURERS ASSOCIATION

327 South LaSalle Street, Room 1154, Chicago 4, Illinois



WELL-BEHAVED BOXES...



...are vital to modern, mechanized handling methods. As operations become more automatic, interruptions are more costly. Precision-built Gaylord containers are dimensionally accurate and structurally strong to speed packing and handling...prevent jam-ups.

Gaylord container specialists will be glad to work with you in selecting or developing "well-behaved boxes"... for maximum manpower-saving efficiency. Call your nearby Gaylord office.

CORRUGATED AND SOLID FIBRE BOXES • FOLDING CARTONS • KRAFT PAPER AND SPECIALTIES • KRAFT BAGS AND SACKS

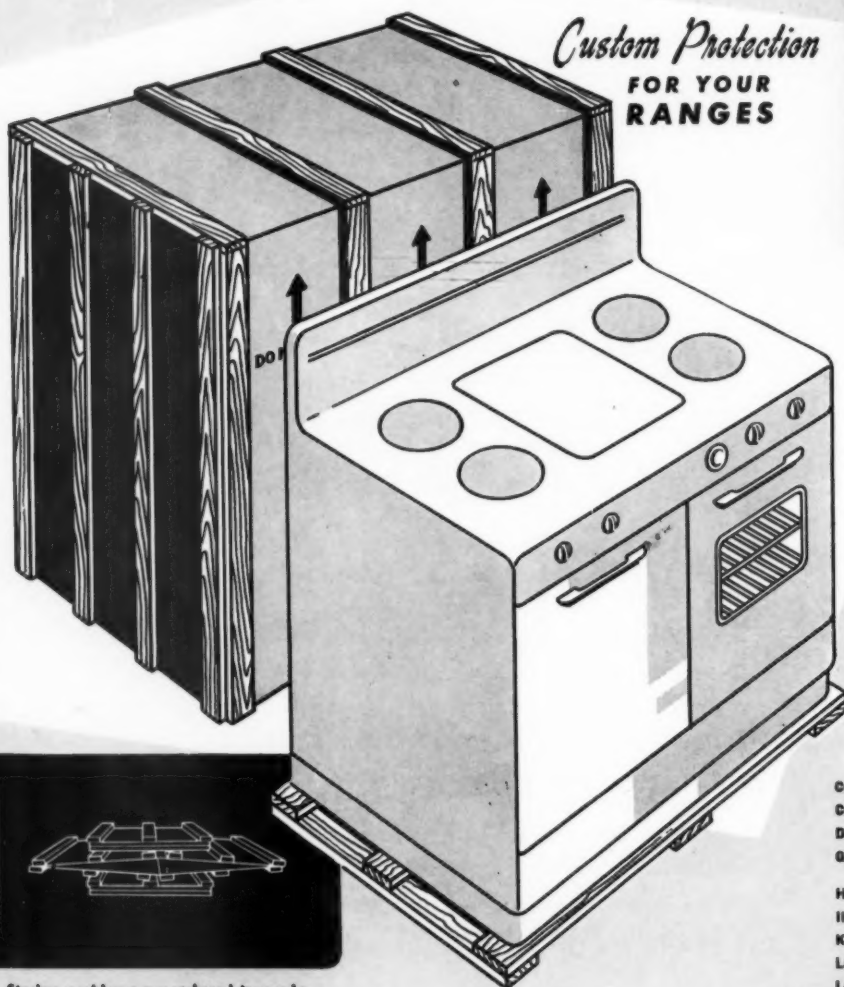
GAYLORD CONTAINER CORPORATION ★ ST. LOUIS

DIVISION OF CROWN ZELLERBACH CORPORATION

For home appliances, for *all* types of finished products, the Watkins Container is your best insurance for safe delivery. Your product is enclosed 100% by a smooth, staple-free interior to safeguard fine finishes and to keep out dust and dirt. It will carry safely, you can stack to any practical height, and resistance to "weaving" and shock is assured.

The "Traveling Billboard" feature of Watkins Containers is another feature to consider. Your advertising message can be printed in two colors, on all four sides.

Only Watkins Containers provide *all* of these many desirable and necessary features, and at no greater cost than other types of containers. Ship your carefully manufactured products safely and economically — ship them the "Watkins Way."



Storing problems are reduced to a minimum because of the 3-section design which provides for flat, close nesting.



WATKINS has the container for your shipping problem

these companies build WATKINS containers

Cozier Container Corp.	446 East 131st Street, Cleveland, Ohio
Crate-Rite Mfg. Co.	1015 Orient St., Oakland 7, California
Dura-Crates, Inc.	940 East Michigan Street, Indianapolis, Indiana
General Box Co.	1825 Miner St., Des Plaines, Illinois 16th and Maple Sts., Louisville, Kentucky
Hemb & Martin Mfg. Co.	P. O. Box 108, Murfreesboro, Tennessee
Illinois Box & Crate Co.	811 Center Street, Plainfield, Illinois
Klockhofer Box & Lumber Co.	1711 West Canal Street, Milwaukee, Wisconsin
Lane Container Corp.	10212 Denton Road, Dallas, Texas
Lewisburg Container Co.	243 Singer Street, Lewisburg, Ohio
Livingston Wood Manufacturing, Ltd.	Tiltsburg, Ontario, Canada
Love Mfg., Inc.	608 South Commerce Street, Wichita, Kansas
Pennsylvania Box & Lumber Co.	2331 N. Bodine St., Philadelphia 33, Pennsylvania
Utility Crate Corporation	1985 E. 16th Street, Los Angeles 21, California

— an inquiry to any of these companies will get prompt attention

The • WATKINS CONTAINER • Manufacturer

March, 1956

safe transit

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DANA CHASE PUBLICATIONS
York Street at Park Avenue
Elmhurst, Illinois

editorial voice of the national safe transit program
devoted to improving packaging methods and shipping and materials handling methods for the appliance and metal products manufacturing industries. This section contains plant experience information and industry advances for the use of all executives and plant men interested in improving packaging and shipping methods and in loss prevention. The section contains complete information on the national safe transit pre-shipment testing program for packaged finished products and detailed reports of divisions and sub-committees of the National Safe Transit Committee.

published monthly as special section of finish — the magazine of appliance and metal products manufacturing

Interest in national safe transit program grows . . .

lowered transit damages, improved customer relations, marked savings in packaging costs, aid in improving product design, reported by users.

FIFTEEN MILLION labels are being used this year to tell a story of product protection, of awareness of the fact that manufacturing engineering and quality efforts are in vain if products reach their destination in a damaged condition.

That label, bright red on a yellow background, heralds the development of a program initiated almost seven years ago. This program, under the guidance of the National Safe Transit Committee, sponsored by the Porcelain enamel Institute, was inaugurated to counter the mounting transit damages to appliances and other metal products.

Program widely endorsed

The merit of such a program is best attested to by listing its successes. For instance, more than 214 companies—representing the majority of home appliances and other metal products manufactured in America—have been certified to display the NST label on their packaged products. How they earned that right is discussed below. Also, the committee and the National Safe Transit program has been cited by such associations as the American Trade Assn. the Assn. of American Railroads, the American Trucking Assn., Air Cargo and the Railway Express Agency, and many others. The appreciation of these vitally concerned transportation industries is good proof of the program's value.

The story behind those fifteen million labels, and those citations from America's transportation industry, is unique.

First off, the National Safe Transit Committee is not a paid organization, in spite of its great value and the need for its services. In fact, members of the committee are top executives in major American companies—brains that such a committee could never afford to purchase who have, under the leadership of the general chairman, R. F. Bisbee, waged a relentless effort toward the achievement of the NST program objectives.

Secondly the program is strictly voluntary and cooperative in nature. The simple procedures for joining the program are listed elsewhere in this report. The program itself is designed to aid the manufacturer to help himself. Also, upon assurance of the manufacturers' conformance to the program's basic rules, the NST committee then promotes that fact—promotes to the carrier of the manufacturers efforts to provide assured and safe transit, promotes to the purchaser that this manufacturer is taking all effort to assure the products perfect condition upon its arrival.

Becoming an NST member

How does packaged product earn the right to bear the NST label? Well, that's answered in the box telling how a manufacturer joins an organization. But the reasoning behind those three simple steps is of interest. It was the opinion of the committee that a sensible approach to the problem of how to assure safe transit and handling would be to pre-test packaged products before ship-



ments were made. In other words, the new look is really an adaption of that old saw "An ounce of prevention. . .", whereby prevention, rather than cure, is the basic approach toward a solution of the problem.

Under this basic formula, the manufacturers are required to have their packaged product processed through a simple test procedure. This procedure, developed by the NST committee to incorporate all the demands that could be placed on a package, plus a comfortable margin, can be followed in the manufacturer's own plant or in any one of the 44 some certified laboratories located throughout the country.

When a product and package, tested as a single unit, has passed the tests,



PREMISE

All manufacturing, engineering, and quality efforts are in vain if the product reaches its destination in a damaged condition.

O. A. Sutton reports \$234,000 saving

A saving of \$234,000 has been reported by the O. A. Sutton Corporation of Wichita, Kan., for the one year period ending Aug. 1, 1955 — the direct result of pre-shipment testing which enabled them to materially reduce the cost of their shipping containers. In addition, complaints of shipping damage were reduced to a negligible percentage. O. A. Sutton manufactures Vornado fans and Vornado air conditioners as well as air conditioners for three large distributors under their own brand names. All of the 1955 production of air conditioners and 70% of the company's fans carried the NST label. A full report on Sutton packaging procedures is now under study for presentation in these pages. In the photo (l to r) Dan J. Mull, vice president of engineering, Robert Cordes, director of quality control, and Joe Dolland, vice president of manufacturing, look at the first fan in the company's 1956 production with, of course, the attached NST label.

.. as success stories pour in from NST members

INTEREST CONTINUED

the manufacturer certified that fact to the NST committee, who grant permission for the NST label to be used on that pre-tested packaged product. Any variance in product design, or in package design requires re-processing through the test procedures before the NST label can be continued in use.

No restrictions are made as to the type of materials used in any package, nor for that matter, is there any specifications for any type of design of the product itself. The only demand is that a product and its package must be tested together in the prescribed methods.

The acceptance of this program has already been attested to. But what about the results achieved by those manufacturers? Well, the following reports from manufacturers are evidence themselves of the tremendous savings, and the great value that the NST committee visualized when their broad program for safe transit was inaugurated. So many reports are now on hand, that those pre-

sented on these pages represent only a sampling of the attested results. More will appear in the following issues.

Firm believer in system

Sir: . . . to the best of my knowledge this company was one of the first if not the first to join the National Safe Transit program. Prior to our joining this we have always been very conscious of the problem of packaging and getting the goods to our customers in good condition. . . . we believe that the biggest benefit that your (NST) organization has brought about is the consciousness not only among manufacturers but among the carriers of getting the goods to their destination in perfect condition. It would be our opinion that if the program could be extended to exert greater effort on the carriers handling the shipments that even more benefit would be realized.

E. A. Lindemann,
President and General Manager
A. J. Lindemann and Hoverson Co.

Testing procedures invaluable aid

Sirs: we have recently changed over to the use of all corrugated shipping containers for all gas ranges produced in this plant. National Safe Transit test procedures have proved to be an invaluable aid in establishing final specifications for our new customers. In addition to its use in conjunction with development projects we use National Safe Transit test procedures as a regular production check on materials and methods.

D. O. Culligan
Supervisor of Packaging
Florence Stove Company

Amana Designs to meet specs.

Sir: Since January of 1954 we have been conducting tests in strict accordance with your test procedure, project 1 (A full description of the test procedures and projects appeared in the March issue of *Finish*, 1953, copies supplied on request) and have found

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Transit damage claims materially reduced

Shipment damages have been materially reduced for the Mt. Vernon Furnace and Mfg. Co., Mt. Vernon, Ill., as a result of their participation in the NST program, Ray Schweinfurth, the company secretary, points out. Moreover, reports Schweinfurth, "our experience with the work of the national safe transit Committee is convincing to us that weak spots as far as shipping is concerned are eliminated in both the product and the container". Above, another protected shipment of the company's Vernoise ranges gets underway as the shipping foreman attaches an NST sticker to the crated ware.



Manufacturers

that all our products have consistently passed these tests. In addition, we have tested many new designs of crates or freezer modifications and their adoptions have been made or rejected pending the outcome of your tests. We are certainly pleased with all of our past experience with your testing program and definitely design to meet its required results.

Paul A. Zimmerman
Engineering Dept.
Amana Refrigeration, Inc.

Prideful of NST sticker on products

Sir: . . . we find we have already gained a great savings in the cost of shipping containers for our product. We manufacture grinding wheels and it has always required a very costly package to ship these in what we considered a safe package. Our package formerly consisted of wood boxes or plywood drums with sawdust as a packing agent, which, in itself, creates a housekeeping problem. Since we have available certified laboratories to test our shipments,

Four figure annual saving for U. S. Rubber

Since NST standards were accepted and proven, U. S. Rubber Company's damage reports have been zero, I. J. Dawson, manager of the company's Fort Wayne, Ind., materials handling division, has reported. Prior to NST, Dawson says, we pretested our grinding wheel packs to arbitrary standards which were about 50% more severe than NST's. Dawson reported his division does not have a record of overall packaging cost savings. However, he said, "we have made substantial reductions in the past two years which cannot help but result in totals of four figures per year". Most of these have been the result of major packaging changes, while some have been from successful testing of lower cost component packaging materials.

SUCCESS CONTINUED

we have developed a method, novel to the industry, in that we palletize our wheels in a flat position with corrugated cutouts between the wheels and tied together with steel strapping. These have passed all tests which the committee recommends without a mishap and we have been using them since June for all our customers. To one of our customers alone, a shipment that previously cost us \$125 for materials, we cut cost of materials to \$14 and this does not include the savings on shipping weight which has been greatly reduced—up to 200% in some cases. As you can see we are very happy with National Safe Transit and point with pride to the labels on our package.

George W. Mills,
Director of Planning
Simonds Worden White Co.

Assures Proper Package

Sir: our procedure in packaging is to discuss it with the various proposed vendors of packages. We then ask them to make samples and test them to be sure that they will pass the National Safe Transit Test. In this way, we feel we are sure of obtaining the best package at the minimum cost right from the start of the program.

A. E. Reiss
Project Engineer
Remington Corporation

Result of NST—better packaging

Sirs: For some years now, the Kuehne Manufacturing Company has been participating in the National Safe Transit program. We have tested each new product according to established procedures prior to releasing same for production. In addition to this, we have also run periodical tests of various items which we manufacture and which have been taken off our production lines. Results of these procedures have brought about better packaging of our production, and a reduction in damages to the product on arrival at destination. It is very difficult to say that any actual cost reductions have taken place in packaging. However, we feel that our packaging dollars are being spent in the right places as a result of these testing procedures. They always

ST-8



SMU PACKAGING INSTITUTE PREPARES FOR NST CERTIFICATION

Mr. Paul O. Vogt, acting in his capacity as an advisory director of the Southern Methodist University Packaging Institute, checks out the operation of the National Safe Transit vibration tester and the pendulum impact tester with Dean E. H. Flath, SMU Engineering School, and James W. Griffith, director of SMU Packaging Institute.

The SMU Packaging Institute is sponsored by the Southwestern Package Test-

ing Laboratory, Inc., a non-profit corporation supported by shippers, carriers, and container manufacturers in the Southwest to further the cause of a more scientific approach to packaging problems. *This laboratory plans to be certified by the National Safe Transit Committee on or before March 1.* It is scheduled to be of service to run pre-shipment safe transit tests for shippers in the Southwestern area.

show up weaknesses where they exist on early tests. Thereby, allowing us to pre-determine where additional packaging might be necessary for safe arrival of shipments.

Herbert E. Williams
Product Engineer
Kuehne Manufacturing Company

Like NST package design control

Sir: we have very definitely effected a cost reduction in our packaging methods. We find that close adherence to safe transit preshipment tests have

shown us when we actually over-designed as well as inadequately designed a crate. We never change the structural design or packaging method contained within our appliance without first conducting a preshipment test on the crated item. We are very pleased with the role that the National Safe Transit program has played in our organization in the reduction of freight damage. We have no way or system of actually monitoring or checking (actual or estimated reductions in damages since adoption of the NST program), how-

MARCH • 1956 finish

ever, I will add that when the Safe Transit labels are present, if a claim is made, it certainly helps the carrier understand that we are cognizant of good transit packaging methods. . . .

C. A. Tondreau
Manager, Quality Control
Ben-Hur Mfg. Co.

Reduce damage to 3/10% with NST

Sirs: We joined NST because we were having a great deal of difficulty in shipping a piece of office furniture. Before membership in NST, our percentage in damage due to poor packaging exceeded 7%. Since we have been using a pre-shipment tested package, bearing the NST label, our damage has diminished to less than 3/10 of 1%. And with the cooperation of our carton manufacturer, who is an NST member, we have developed a package which enables us to ship our product completely assembled, which we were not able to do before. Our first attempt passed the pre-shipment test and we have shipped successfully ever since. The cost of our package was increased. However, this was offset by reduced damage claims and greatly improved customer relations. We have discovered that packaging should be a definite part of quality control and is no longer an after-thought in the development of a new product. Due to the gratifying results of our first venture with the NST program, we would not consider shipping a finished product in a package that has not passed the National Safe Transit Tests.

R. N. Sellon, Jr.
Product Research & Design Engineer
Stolper Steel Products Corporation

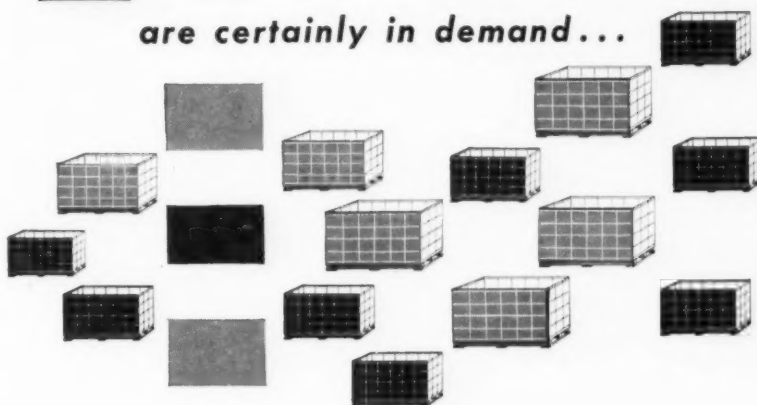
Product Design quality control

Sir: we do find that our periodic NST testing by our Quality Control groups brings out (any) weaknesses in product design or carelessness in assembly. This alone would make the program a success since this type of inspection is difficult to do otherwise. . . .

R. M. Hindman
Chief Packaging Engineer
Crosley and Bendix
Home Appliances Divisions
Avco Mfg. Corporation

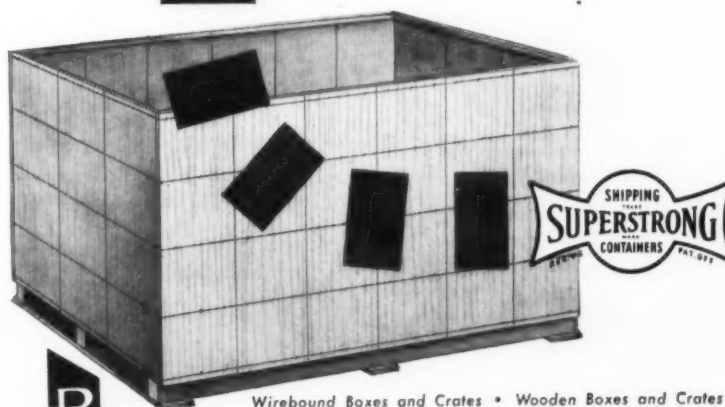
finish MARCH • 1956

our **Wirebound Pallet Boxes** *are certainly in demand...*



Ever since we introduced the **SUPERSTRONG** Wirebound Pallet Box we have been receiving a heavy volume of orders—and of favorable comments. Seldom has a new product been greeted with such enthusiasm.

The combination of light weight with strength . . . the appreciable reduction in materials handling costs—provide the answer. If you do not know all of the advantages of **SUPERSTRONG** Wirebound Pallet Boxes, please let us tell you about them.



Wirebound Boxes and Crates • Wooden Boxes and Crates
 Corrugated Fibre Boxes • Beverage Cases • Starch Trays • Pallets

RATHBORNE, HAIR and RIDGWAY BOX CO.

1440 WEST 21st PLACE, CHICAGO 8, ILLINOIS

ST-9

SAFE TRANSIT NEWS



NEW PACKAGES WITHIN A PACKAGE SIMPLIFIES SHIPMENT OF LAUNDRY DRIER PARTS FOR ST. LOUIS COMPANY

A corrugated bulk container holding 1200 lbs. of controls for home laundry drier units has some unique built-in ideas that are proving a money saver for the White-Rodgers Electric Co. of St. Louis, it is reported. The container, designed by Gaylord Container Corp., in collaboration with Robert Rollings of White-Rodgers, was specially designed to meet requirements of drier manufacturers who incorporate the controls into their production line techniques.

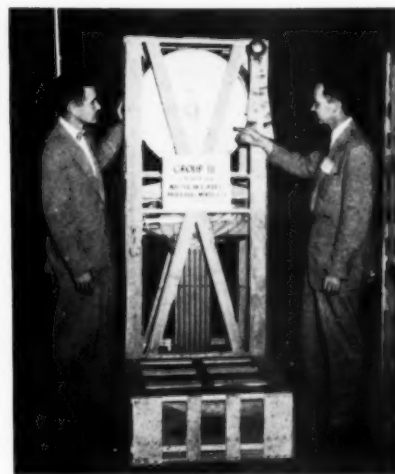
The "package" consists of six separate corrugated containers. Four hold 216 automatic pilots each, and two hold 432 solenoid gas valves each. This represents the sets of controls needed for 864 driers. When the bulk container reaches the customer, the smaller boxes containing automatic pilots are put on the conveyor line. Larger boxes, containing valves, are designed to be placed in position on the assembly line and the operators works right from them.

Packaging procedure is to place the two containers filled with valves on an expendable wooden pallet and place a

cap over them. The four boxes, containing pilots, are then placed on this cap and covered with the top cap. The six containers are steel-strapped to the wooden pallet, two straps each, top to bottom, and over the sides and ends. The box is also supplied with nesting partitions used to form the layers necessary to fill the individual containers as well as between layer pads. Overall size of the six boxes combined is approximately 41½" x 40¾" x 34¼".

WIREBOUND BOX DESIGN THAT CUT PACKING TIME 50% WINS AWARD

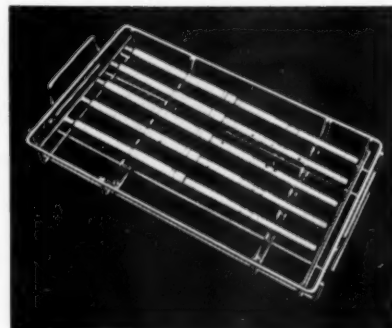
A wirebound box design that cut packing time 50%, and weighing machine set-up time by 80%, won first place for Fairbanks Morse Co. in the 1955 packaging competition in New York City. Walter M. Gates of F-M's St. Johnsbury, (Vt.), operation — where the machines are produced and packed — outlined other features which led to the award in the annual wirebound container competition. Forty-two different models of the weighing machine are shipped all over the U.S., he said, using only six different crates and two sets of blocking pieces. A special rubber grommet holds the head



fast and a polyethylene bag protects the scale from dust and moisture. In the photo, Bill Crane of General Box Co. listens as Gates tells how the scale crate won first place.

PARTS HANDLING BASKETS FOR SPECIALIZED NEW DESIGN IN WIRE

Specifically designed for mass production operations a new wire basket, developed by Wire and Iron Products Inc., Detroit, Mich., has enabled a leading automotive concern to standardize on one container for handling and transporting spline shafts from initial machining to final assembly. Of welded wire construction, the rust resistant unit has improved traffic flow for users, aiding in increased parts production and contributing toward greater efficiency in storing parts at transfer points.





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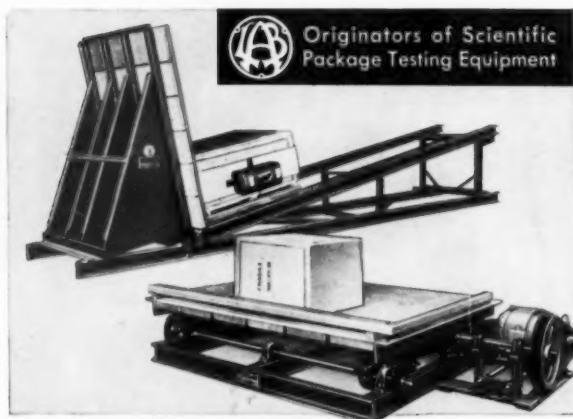
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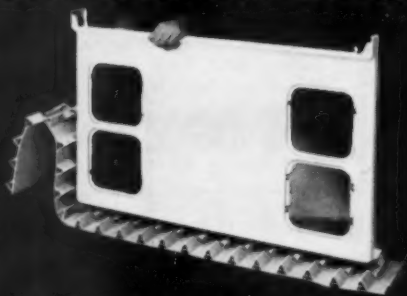
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STAINLESS STEEL CONTINUED

→ from Page 86

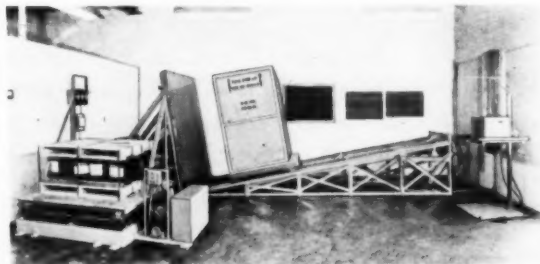
The increase in production of type 304 amounted to approximately 24%, a somewhat lower figure than the average. On the other hand type 316 has shown an increase of 57%, which is higher than the average. This may be partially explained by the increasingly severe demands placed upon equipment by the chemical and other industries. Type 316 has an austenitic structure which contains 16-18% chromium, 10-14% nickel and 2-3% molybdenum. It has an especially high resistance to certain acids and halogen salts, and is used extensively in chemical equipment, pulp and paper and textile processing.

Technical advances parallel production increases

Major changes in stainless steel designations, the result of improved industry practices and elimination of certain government controls, now assures users of even greater uniformity and dependability from these steels, the Institute reported. Producers have been able to work to closer alloy limits, particularly on carbon. As a result the maximum permissible carbon content has been lowered for six grades: 301, 302, 302B, 316, 317, and 446. Low carbon content is required in most types for maximum resistance to corrosion, while higher carbon content is employed for increased hardness, as in cutlery grades.

Introduced during the year, the new low-nickel, chromium-manganese stainless steels, 201 and 202, were received with a great deal of interest on the part of industry.

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NEWS

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The Pressed Metal Institute elected the following officers at its annual meeting in North Carolina: president, Joseph J. Boehm, The Boehm Pressed Steel Co.; vice presidents, Bruce Krasberg, R. Krasberg & Sons Mfg. Co., and C. E. Stryker, Maysteel Products, Inc.; secretary-treasurer, W. B. Gemmill, The American Stamping Co.

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